DOCUMENT RESUME

ED 218 279 SP 020 495

AUTHOR Cotton, Kathleen; Savard, W. G.
TITLE Mastery Learning. Topic Summary Report. Research on School Effectiveness Project.
INSTITUTION Northwest Regional Educational Lab., Portland, Oreg.
SPONS AGENCY Alaska State Dept. of Education, Juneau. Office of Planning and Research.
PUB DATE Jun 82
NOTE 101p.

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Academic Achievement; Educational Research; Elementary Secondary Education; Intermode Differences; Learning Readiness; *Mastery Learning; Postsecondary Education; *Research Reports; Student Behavior; *Teaching Methods; *Time Factors (Learning)

ABSTRACT

This report synthesizes findings emerging from research on mastery learning. Thirty-three documents were retrieved and analyzed for the report. The documents were concerned with mastery learning research at various levels, from elementary through postsecondary education. Specific subject areas which were the partial or total focus of the reports included: mathematics; science; reading and language arts; social studies; geography; consumer economics; history, auto mechanics; and shop. The introduction to this report offers a review of the features of mastery learning and defines mastery learning as "a strategy which seeks to raise student achievement by increasing the amount and quality of the time students spend pursuing learning activities." A discussion is included on arguments for and against the mastery teaching strategy. A general overview is presented on the effects of mastery learning on student achievement, retention, and attitudes, and recommendations for future practice are made, based on the research. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED2182 79

SP

Topic Summary Report

MASTERY LEARNING

Research on School Effectiveness Project

Prepared for:

Alaska Department of Education
Office of Planning and Research

June 1982

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M. MARGARET ROGERS

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☒ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Audit and Evaluation Program
Northwest Regional Educational Laboratory
300 S.W. Sixth Avenue
Portland, Oregon 97204

SP 020 495

PREFACE

This report is one of several in a series of reviews of research literature conducted for the Alaska School Effectiveness Project. Each of the reports addresses a topic which is deemed to have an impact, actual or potential, on school effectiveness. All of the reports have been generated using the same general approach and a common reporting format.

The review process begins with a topical literature search using both computer-based ERIC and conventional library methods. Articles and other documents found are analyzed and abstracted into a brief form called an Item Report . Each of the items is then judged against a set of pre-established criteria and ranked on a five-point scale. The collection of Item Reports is then examined for purposes of identifying issues. These issues are stated in the form of hypotheses. Each hypothesis thus generated becomes the subject of a Decision Display. A Decision Display is created by sorting the Item Reports into those which support or negate the hypothesis, are inconclusive, are badly flawed, or are irrelevant. One or more Decision Displays are generated for each topic addressed. A Summary Report is then generated from the consideration of the Decision Displays and the file of Item Reports. Thus, each complete report in the series consists of a Summary Report which is backed up by one or more Decision Displays which in turn are supported by a file of Item Reports. This format was designed to accommodate those readers who might wish to delve into various depths of detail.

This report is not intended to represent the "final word" on the topic considered. Rather, it represents the analysis of a particular collection of research documents at this time. There may be other documents that were not found because of time or other limitations. There may be new research published tomorrow. This present report represents our best judgment of available information at this time. This format allows for modification and re-analysis as new information becomes available or old information is re-interpreted.

For a more complete description of the analysis process see William G. Savard, Procedures for Research on School Effectiveness Project, Northwest Regional Educational Laboratory, December 10, 1980.

Topic: Mastery Learning
Authors: Kathleen Cotton and W. G. Savard
Date: June 1982

Introduction

Any instructional strategy which is said to be able to raise the achievement of eighty percent of all participating students to a level normally reached only by the top twenty percent is certain to receive attention and to generate controversy. Such a claim has been made for mastery learning, a strategy which seeks to raise student achievement by increasing the amount and quality of the time students spend pursuing learning activities.

Proponents of mastery learning have challenged the notion of student aptitude as an indicator of student ability to learn. Instead, mastery learning advocates regard student aptitude as an indicator of the amount of time a student will require to master learning material to whatever criterion level is decided upon at the outset of instruction. They contend that the reason many students do not reach a high level of achievement is not that these students are inherently incapable of grasping the learning material. What is really going on, according to these mastery learning proponents, is that the average school schedule "calls time" on these students before they have had sufficient opportunity to work with the learning material. They contend that when differential amounts of learning time are provided for students of different aptitude levels, and when the slower learners spend their additional time allotments on appropriate remediation activities, most students are able to learn as well as the "top" students learn in conventional, time-bound instructional settings.[1]

---

[1]For a detailed report on allocated learning time, time-on-task, and academic learning time, see Kathleen Cotton and W. G. Savard, Time Factors in Learning (Portland, OR: Audit and Evaluation Program, Northwest Regional Educational Laboratory, February 1981).

While not all mastery learning advocates make the claim that four-fifths of students who learn via this approach will perform as well as the top one-fifth usually do, most of these proponents do assert that mastery learning results in dramatic improvements in student achievement levels.

Supporters of mastery learning also claim that this approach fosters greater retention of what is learned, as measured by delayed--and often unannounced--achievement tests given several days or weeks after the completion of instruction. Moreover, ongoing use of the mastery learning approach is said to narrow the gap between the amount of time required by high-aptitude students (rapid learners) and lower-aptitude students (slower learners). In other words, mastery learning proponents assert that slower learners become more efficient at learning as a result of working within the mastery learning structure, with the effect that the initial large time requirements of the slower students are compensated for later on in the learning process. Finally, many advocates claim that, by enabling many more students to experience academic success than is the case in conventional instructional settings, mastery learning confers benefits upon student self-esteem, attitudes toward school, and motivation for future learning.

Those who question the effectiveness of mastery learning, meanwhile, frequently assert that the proponents have overstated their case; that while mastery learning may foster some achievement increases, it does not do so to the degree that some of its advocates have claimed. Some critics state that the advantages conferred by this instructional approach are attenuated or even cancelled out by the time requirements for planning, implementing and operating it. Others contend that, with the exception of mathematics, the goals of instruction are difficult to state clearly enough that quantitative estimates can be made about progress toward those goals. And some writers

have argued that, because mastery learning is a tightly structured, highly specific instructional methodology, it can stifle student creativity and affective development.

Before looking at the research on mastery learning, it is worthwhile to review the special features of this approach. Although there are variations on the mastery learning strategy, several basic components can be identified in most mastery programs: At the outset of instruction, the teacher informs the students that they will be expected to achieve at a certain level--often 70 to 80 percent correct answers on criterion-referenced tests. Students are informed that their interim achievement will be measured using formative tests, and that extra time, learning activities and retesting opportunities will be provided for students not achieving at the required level on their initial attempt(s). Instruction is initiated, and the testing-remediation-retesting process is repeated until all or nearly all students have reached the criterion level for that unit of instruction. The process then commences for the next learning unit. Summative testing follows the completion of the series of learning units, and delayed achievement tests are frequently given to determine how well students have retained what they have learned.

Within this general structure, there are several variations on the mastery learning strategy. Instruction may be individually based or group based. That is, students in some mastery learning settings move ahead at their own rates. In other settings, rapid learners pursue enrichment activities or serve as tutors until most or all of the class has achieved criterion, whereupon the entire group begins a new learning activity together. While many of these group-based mastery programs for elementary and secondary students are commonly categorized together with programs utilizing an approach called Learning for Mastery (LFM), Learning for Mastery technically refers to

a more flexible instructional arrangement whereby individuals can pursue learning material at their own rates. Another major approach, called the Personalized System of Instruction (PSI), is usually used with postsecondary students, involves interactions between students and assigned "proctors," and calls for individual pacing of student progress through the material to be learned.

In some mastery learning settings, the remediation activities provided to students are specific to the errors made by each student on formative tests (e.g., "If you missed Question No. 3, study Activity Sheet No. 3."). In other settings, failure to reach criterion is followed either by a repeated presentation of the original instruction or by a general review of the material. Within some mastery learning approaches, students have virtually unlimited opportunity to repeat the study-test-remediation-retest cycle; within others, additional learning is restricted either by time or by the number of retests students may take.

The research on mastery learning is varied, owing to the different sorts of mastery approaches examined by different investigators. This report represents an attempt to synthesize the findings emerging from this research in order to arrive at some general conclusions about the efficacy of the mastery learning strategy in fostering achievement, affective and other benefits among students. The studies and reviews examined in preparation for this report reflect the whole range of mastery learning research, with the exception that PSI studies conducted at the postsecondary level are de-emphasized.[2]

---

[2]While considerable PSI research has been conducted and reported, its applicability to elementary and secondary instruction is dubious, owing to its staffing requirements and the high degree of responsibility for independent study it places upon students.

Thirty-six documents were retrieved and examined in preparation for this report. Three contained findings already reported in other sources we had reviewed, leaving a resource base of 33 documents. Twenty-four of these were primary sources. Nine were secondary sources which, taken together, reported the findings of over 100 studies and evaluations. Although some degree of overlap inevitably occurs in such circumstances, efforts were made to avoid multiple inclusions of the same material.

Thirteen of the documents were concerned with mastery learning research involving elementary students, six with research on secondary students, and seven with studies involving both elementary and secondary students. Five documents reviewed research conducted with students at all levels, primary to postsecondary. Two focused on research with postsecondary students only.

Many of the documents reported the findings of research on the application of mastery learning strategies in more than one curricular area. Eleven of the reports were concerned with the effects of these strategies on achievement generally. Specific subject areas which were the partial or total focus of the reports include: mathematics (5 reports); science (5); reading/language arts (7); social studies (5); geography (3); and consumer economics, history, auto mechanics and shop classes (1 each). Twelve of the reports were concerned with the effects of mastery learning on student attitudes.

Mastery learning researchers tend to set up research designs which involve measuring student achievement immediately after a learning unit is completed, and again after a period of several days or weeks. Eighteen of the documents reported findings concerning both the summative achievement of student subjects and their delayed retention.

The findings reported in the next section have to do with the effects of mastery learning on student achievement, retention and attitudes. Additional findings are presented concerning learning time requirements and remediation

techniques. It might also be worthwhile to mention two issues about which findings are not reported. First, whether mastery learning can bring fully 80 percent of participating students up to an achievement level normally associated only with the top 20 percent is not addressed as such in the research literature, and findings which bear on this issue are very variable. Second, although both individually paced and group-based mastery learning strategies were used in the studies examined, research comparing the two methods was insufficient to permit even tentative conclusions about their relative merits.

Findings

The most important and best-supported hypothesis emerging from the research reviewed is that the use of mastery learning strategies with elementary and secondary students produces achievement results superior to those resulting from non-mastery instruction. Twenty-three of the 30 investigations of this issue lent support to this statement, and these investigations concerned a wide range of curricular areas, student age/grade levels and student aptitude levels. Several of the researchers noted that low-aptitude students benefitted even more than other students from this instructional approach.

The kinds of mastery learning strategies used for the studies reviewed covered a wide range. Students in some studies were limited to one or two cycles of remediation and retesting, while virtually unlimited opportunities were provided in others. Some studies were set up so that corrected formative tests indicated both which answers were wrong and what the right answers were; others allowed students to know only where their errors occurred. And

different criterion levels were established from study to study. Regardless of these differences in approach, mastery learning students outperformed students instructed in more conventional ways in nearly all of the studies and reviews examined.

While these research results are very impressive, there are two additional factors which will influence conclusions drawn about the general superiority of mastery learning over other instructional approaches. One is that seven (of 30) well-structured studies failed to find differences favoring the mastery learning strategy over one or more other approaches. These studies generally found no appreciable differences for students as a whole on measures of achievement or retention. Some found differences for some categories of students, but there is no discernable pattern of findings from study to study.

The other limiting factor has to do with conclusions drawn by a few researchers who considered the cost/benefit relationship involved in using a mastery learning approach. Some of these researchers concluded that, although their results showed statistically significant achievement and other differences favoring mastery learning, the amount of time required for student learning and/or for program management was too great to justify its ongoing use. While this concern is technically outside the issue of efficacy, it seems worthwhile to cite it here, inasmuch as it was presented by some of the same people whose findings support mastery learning from the perspective of student outcomes.

A second hypothesis generated from the review effort is that <u>the use of mastery learning strategies with elementary and secondary students results in greater retention of learning material than occurs following non-mastery instruction</u>. Fifteen of the 18 documents which reported findings on student retention supported this contention. As with the achievement findings, retention findings were arrived at in different ways. In one study students

took a retention test ten days after summative achievement testing on a three-unit instructional series in mathematics. In another, students had a two-week delay between summative and retention testing on 14 geometry subskills. And one study involved administration of retention tests a month after summative testing on a social studies unit. In general, mastery learning students not only performed better, but performed a great deal better, than comparison students. Of the non-supporting studies, one had found summative achievement differences favoring mastery learning and two had not.

Twelve of the reports were concerned with student attitudes, so we advanced the hypothesis that the use of mastery learning strategies with elementary and secondary students results in more positive student attitudes than those resulting from non-mastery instruction. Six reports contain findings supporting this hypothesis, five contain findings which do not lend such support, and one report was inconclusive. The non-supporting studies were so categorized because they reported no differences between the attitude scores of mastery and non-mastery students. Curiously, all the supporting documents were secondary sources, and all the non-supporting ones were primary sources. Looking at quality ratings, the supporting studies have the edge by an average of approximately one point on the five-point scale used in this project. These data do not lead to a clear, overall statement of findings. Research has sometimes found that mastery learning enhances student attitudes and sometimes that it neither enhances or erodes them.

In the introduction to this report, we called attention to the claim made by some mastery learning proponents that students who are initially slower learners tend to pick up speed over time as they work within the mastery learning structure. Eight of the reports addressed this issue, and seven of these support the hypothesis that ongoing use of mastery learning strategies

with elementary and secondary students tends to equalize the amount of learning time required by students of different initial aptitude levels. A progressive reduction was noted in the amount of time required both for slower students' initial learning and for their remediation activities. This does not mean that mastery learning techniques have the power to level all differences in learning rate and efficiency, but it does indicate that those concerned about time requirements might expect the slow learners to "close in" on the faster learners during the course of a mastery program. As one reviewer summarized, "the investment of extra time early in the learning sequence is balanced by a payoff of more effective use of time at the later stages of learning."

Of all the comparisons which might be made regarding the relative efficacy of strategies employed within the mastery learning approach, one received enough attention in the research to warrant developing and testing a hypothesis: that remediation which focuses on the specific errors made by students on formative tests has a more positive effect on student achievement and retention than remediation which involves a general review of the original lesson content. Five of the six reports which addressed this issue lent support to this hypothesis. Those studies which also included non-mastery subjects indicated that either kind of remediation strategy is preferable to no remediation at all, but that practice which focuses on the content students failed to master initially is superior to having students restudy all the material in a unit or series.

Conclusions

As one reviewer summarized, "mastery methods not only work, but work very well." By providing learning "checkpoints" through the use of formative tests, and then providing additional time and practice for students who need

it, mastery learning enables the majority of students to get a firm grasp on each skill, concept or set of items before moving on to the next sequence of activities. In this way, far fewer students are left in the dust and forced to try to tackle new learning material without the necessary prerequisites. Instead, as described by one writer:

> Mastery learning is best understood as a special case of criterion-referenced instruction, in which the objective of instruction is made apparent to the student at the outset, and kept before the student until he or she achieved it. While in the process of achieving it, the student is given frequent feedback about the proportion of the distance toward the goal that he or she has covered... Mastery learning places heavy emphasis on drawing the student's attention to the ultimate goal, and soliciting his motivation toward achieving it by offering him the promise that he can do it.

Mastery learning strategies are generally very effective for fulfilling this promise.

Readers familiar with this series of reports will recall that some cautions were offered in an earlier report regarding the use of direct instruction methods for curricular areas which do not readily submit to logical sequencing and prespecified responses.[3] Mastery learning, which is similar to direct instruction and frequently employs direct instruction methods, consequently has similar limitations. One reviewer, after offering support for the use of mastery learning for basic skill development, goes on to say that:

> There is little evidence to suggest that mastery learning principles can be as readily applied to the development of higher level conceptual or decision-making skills, the acquisition of aesthetic interests and appreciation, the development of socioemotional or affective capacities, or any number of other outcomes indicative of either a well-educated, well-functioning, or socially effective individual.

---

[3]See Kathleen Cotton and W. G. Savard, Direct Instruction (Portland, OR: Audit and Evaluation Program, Northwest Regional Educational Laboratory, February 1982).

With this reservation, it can be concluded that mastery learning is a powerful means of fostering student achievement in many instructional areas.

Mastery learning methods are also effective in promoting student retention of learning material. It appears that the mastery learning process, which emphasizes learning first things first--and learning them fully--before attempting subsequent material, increases the likelihood that students will remember what they have learned and be able to apply these learnings to new situations. Admittedly, the time which elapsed between summative achievement testing and retention testing was relatively short in the studies reviewed--anywhere from a few days to a month. Still, the considerable differences between retention test scores of mastery learning students and conventionally instructed students indicates that the former results in superior recall of learning. Some of the researchers advocated that the effects of mastery learning on longer-term retention be investigated.

Student attitudes--toward particular school subjects or toward school in general--have sometimes been shown to improve within a mastery learning structure and have sometimes been unaffected by such a structure. There is no evidence in the studies reviewed that mastery learning leads to a deterioration of student attitudes. The conservative conclusion which can be drawn from the studies as a group is that mastery learning does not affect student attitudes adversely and, in many circumstances, leads to improvements in student attitude.

Only eight reports addressed the issue of whether learners who are initially slower become considerably more efficient through experiencing mastery learning methods. Thus, it is not possible to draw firm conclusions about the alleged equalizing effect of mastery learning on the learning time requirements of students generally. It does appear, however, that familiarity

with the mastery learning method, together with the greater amounts of time-on-task called for by this method, tends to increase the learning efficiency of slower students in comparison with their initial learning rates.

As for the relative merits of different types of remediation within the mastery learning approach, data are again insufficient to permit firm conclusions. If specific remediation is indeed superior to general review, it is not difficult to see why. The specific remediation approach assumes that original learning will not be lost if it is set aside for a time in order to identify and address students' specific factual or conceptual errors. Within this structure the amount of time and effort students can devote to those things they didn't "get" or didn't remember the first time around is greater than it would be if they were to restudy the entire instructional unit.

Recommendations

In light of the findings cited and conclusions drawn about mastery learning, we offer several recommendations:

1. As applied to students in instructional settings, the word "slow" is often used as an euphimism for stupid. The research leading to the development of mastery learning programs, and the research conducted on these programs, have established that the vast majority of slow learners are, in fact, merely slow learners--students who require more time to master a given amount of material than do certain other students. It is, therefore, strongly recommended that anyone who is in the habit of regarding slower learners as inherently less competent than faster learners work to change this way of thinking and to support the development of appropriate learning activities for both slower and faster learners.

2. Schools and districts are encouraged to familiarize themselves with the principles of mastery learning and to make use of these principles with students at all levels.

3. Schools and districts are encouraged to investigate specific mastery learning programs in relation to local needs and local capacity to implement and manage such a program.

4. It is particularly recommended that mastery learning programs for primary level basic skill development be considered, as (in the words of one reviewer), "there is no question that many of the basic skills of reading, language use, mathematics, and symbolic logic on which so much learning and practical work depend can be taught using mastery learning strategies."

5. Mastery learning is not recommended for curricular areas in which a logical ordering of parts is not inherent and for which there are few or no "right answers."

6. The research base on the efficacy of mastery learning in promoting student achievement and retention is adequate; further research in these areas is not required to justify action in adopting programs.

7. The effects of mastery learning on student affective outcomes would be an appropriate focus for additional research. The research base on learning and management time requirements could also benefit from further inclusions, as could research on the different approaches to remediation and on the relative merits of individualized and group-based mastery programs.

MASTERY LEARNING
Decision Display
#1

Restatement of issue as a hypothesis:

The use of mastery learning strategies with elementary and secondary students produces achievement results superior to those resulting from non-mastery instruction.

Item Number	Short Title	Quality Rating of Study (5=High)	
Items which tend to support hypothesis:			
296	Block & Burns, 1976, Four Types of Research	[5]	(most of 50 studies support)
288	Dillashaw & Okey, 1981, High School Chemistry Study	[4]	
292	Ward, 1979, Australian Math Study	[4]	
294	Ryan & Schmidt, 1979, Canadian Review/Studies	[4]	(studies generally support)
297	Burrows & Okey, 1975, 4th and 5th Grade Geometry Study	[4]	
303	Luckemeyer & Chiappetta, 1981, Modified Mastery Study	[4]	
310	Hyman & Cohen, 1979, Ten Conclusions re: LFM	[4]	(studies generally support)
312	Cohen, 1981, LRDS Dilemmas	[4]	(studies generally support)
313	Cohen, 1972, Omaha Project	[4]	
316	Cohen & Rodriquez, 1980, Mexican American Study	[4]	
287	Bloom, 1978, New Views of Learners	[3]	(studies generally support)
290	Bryant, et al., 1980, Disabled Readers	[3]	
291	Hymel & Mathews, 1980, High School History Study	[3]	
293	Smith, 1977, ERIC Review	[3]	(15 of 17 studies support)
298	Jones, 1974, Study II/Review	[3]	(most of 13 studies support)
306	Wentling, 1973, Auto Mechanics Study	[3]	
307	Lawler, et al., 1974, Three CMI Strategies	[3]	
308	Dolan, 1977-78, Mastery Learning Status Report	[3]	(studies generally support)
311	Burns, 1979, Mastery Learning "Box Scores"	[3]	(studies generally support)
314	Fiel & Okey, 1975, Graph Study	[3]	
315	Harford County, 1979, HIRP	[3]	
321	Swanson & Denton, 1976, Secondary Chemistry Study	[3]	
322	Bloom, 1976, Human Characteristics and School Learning	[4]	(studies generally support)

Item Number	Short Title	Quality Rating of Study (5=High)

Items which tend to deny hypothesis:

289	Strasler, 1981, CBE Program Evaluations	[4]
295	Jones, 1976, Grade 7 Geography Study	[3]
299	Fagan, 1976, Transportation-Environment Study	[3]
300	Taylor, 1975, Adaptive Mastery	[3]
304	Chiappetta & McBride, 1980, 9th Grade Chemistry Study	[3]
318	Wyckoff, 1974, Anthropology Study	[3]
326	Rubovits, 1975, Shop Classes	[3]

Items which are inconclusive regarding the hypothesis:

None.

Items which were excluded because they were weak:

None.

Items which were excluded because they were judged to be irrelevant to this hypothesis:

301	Contreras, 1975, 3 Criterion Levels
302	Jones, 1974, Study III
305	Ely & Minars, 1973, Self-Concept Study
309	Hymel & Mathews, 1980, High School History Study II
317	Ware, 1977, Map and Globe Study
319	Block, 1974, Research Overview

MASTERY LEARNING
Decision Display
#2

Restatement of issue as hypothesis:

The use of mastery learning strategies with elementary and secondary students results in greater retention of learning material than occurs following non-mastery instruction.

Item Number	Short Title	Quality Rating of Study (5=High)
Items which tend to support hypothesis:		
296	Block & Burns, 1976, Four Types of Research	[5] (most of 50 studies support)
292	Ward, 1979, Australian Math Study	[4]
294	Ryan & Schmidt, 1979, Canadian Review/Studies	[4] (studies generally support)
297	Burrows & Okey, 1975, 4th and 5th Grade Geometry Study	[4]
310	Hyman & Cohen, 1979, Ten Conslusions re: LFM	[4] (studies generally support)
316	Cohen & Rodriquez, 1980, Mexican American Study	[4]
287	Bloom, 1978, New Views of Learners	[3] (studies generally support)
290	Bryant, et al., 1980, Disabled Readers	[3]
295	Jones, 1976, Grade 7 Geography Study	[3]
298	Jones, 1974, Study II/Review	[3] (studies generally support)
306	Wentling, 1973, Auto Mechanics Study	[3]
308	Dolan, 1977-78, Mastery Learning Status Report	[3] (studies generally support)
311	Burns, 1979, Mastery Learning "Box Scores"	[3] (studies generally support)
321	Swanson & Denton, 1976, Secondary Chemistry Study	[3]
322	Bloom, 1976, Human Characteristics and School Learning	[4] (studies generally support)
Items which tend to deny hypothesis:		
303	Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy	[4]
299	Fagan, 1976, Transportation-Environment Study	[3]
300	Taylor, 1975, Adaptive Mastery	[3]

Items which are inconclusive regarding the hypothesis:

None.

Items which were excluded because they were weak:

None.

Items which were excluded because they were judged to be irrelevant to this hypothesis:

288 Dillashaw & Okey, 1981, High School Chemistry Study
289 Strasler, 1981, CBE Program Evaluations
291 Hymel & Mathews, 1980, High School History Study
293 Smith, 1977, ERIC Review
301 Contreras, 1975, 3 Criterion Levels
302 Jones, 1974, Study III
304 Chiappetta & McBride, 1980, 9th Grade Chemistry Study
305 Ely & Minars, 1973, Self-Concept Study
307 Lawler, et al., 1974, Three CMI Strategies
309 Hymel & Mathews, 1980, High School History Study II
312 Cohen, 1981, LRDS Dilemmas
313 Cohen, 1972, Omaha Project
314 Fiel & Okey, 1975, Graph Study
315 Harford County, 1979, HIRP
317 Ware, 1977, Map and Globe Study
318 Wyckoff, 1974, Anthropology Study
319 Block, 1974, Research Overview
320 Rubovits, 1975, Shop Classes

MASTERY LEARNING
Decision Display
#3

Restatement of issue as a hypothesis:

The use of mastery learning strategies with elementary and secondary students results in more positive student attitudes than those resulting from non-mastery instruction.

Item Number	Short Title	Quality Rating of Study (5=High)
Items which tend to support hypothesis:		
296	Block and Burns, 1976, Four Types of Research	[5] (studies generally support)
294	Ryan & Schmidt, 1979, Canadian Review/Studies	[4] (studies generally support)
310	Hyman & Cohen, 1979, Ten Conclusions re: LFM	[4] (studies generally support)
308	Dolan, 1977-78, Mastery Learining Status Report	[3] (studies generally support)
311	Burns, 1979, Mastery Learning "Box Scores"	[3] (studies generally support)
322	Bloom, 1976, Human Characteristics and School Learning	[4] (studies generally support)
Items which tend to deny hypothesis:		
288	Dillashaw & Okey, 1981, High School Chemistry Study	[4]
306	Wentling, 1973, Auto Mechanics Study	[3]
307	Lawler, et al., 1974, Three CMI Strategies	[3]
320	Rubovits, 1975, Shop Classes	[3]
305	Ely & Minars, 1973, Self-Concept Study	[2]
Items which are inconclusive regarding the hypothesis:		
291	Hymel & Mathews, 1980, High School History Study	[3]

Items which were excluded because they were weak:

None.

Items which were excluded because they were judged to be irrelevant to this hypothesis:

289 Strasler, 1981, CBE Program Evaluations
290 Bryant, et al., 1980, Disabled Readers
292 Ward, 1979, Australian Math Study
293 Smith, 1977, ERIC Review
295 Jones, 1976, Grade 7 Geography Study
297 Burrows & Okey, 1975, 4th and 5th Grade Geometry Study
298 Jones, 1974, Study II/Review
299 Fagan, 1976, Transportation-Environment Study
300 Taylor, 1975, Adaptive Mastery
301 Contreras, 1975, 3 Criterion Levels
302 Jones, 1974, Study III
303 Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy
304 Chiappetta & McBride, 1980, 9th Grade Chemistry Study
309 Hymel & Mathews, 1980, High School History Study II
312 Cohen, 1981, LRDS Dilemmas
313 Cohen, 1972, Omaha Project
314 Fiel & Okey, 1975, Graph Study
315 Harford County, 1979, HIRP
316 Cohen & Rodriquez, 1980, Mexican American Study
317 Ware, 1977, Map and Globe Study
318 Wyckoff, 1974, Anthropology Study
319 Block, 1974, Research Overview
321 Swanson & Denton, 1976, Secondary Chemistry Study

MASTERY LEARNING
Decision Display
#4

Restatement of issue as a hypothesis:

Ongoing use of mastery learning strategies with elementary and secondary students tends to equalize the amount of learning time required by students of different initial aptitude levels.

Item Number	Short Title	Quality Rating of Study (5=High)
Items which tend to support hypothesis:		
296	Block & Burns, 1976, Four Types of Research	[5] (studies generally support)
292	Ward, 1979, Australian Math Study	[4]
294	Ryan & Schmidt, 1979, Canadian Review/Studies	[4] (studies generally support)
310	Hyman & Cohen, 1979, Ten Conclusions re: LFM	[4] (studies generally support)
287	Bloom, 1978, New Views of Learners	[3] (studies generally support)
308	Dolan, 1977-78, Mastery Learning Status Report	[3] (studies generally support)
322	Bloom, 1976, Human Characteristics and School Learning	[4] (studies generally support)
Items which tend to deny hypothesis:		
295	Jones, 1976, Grade 7 Geography Study	[3]

Items which are inconclusive regarding the hypothesis:

None.

Items which were excluded because they were weak:

None.

Items which were excluded because they were judged to be irrelevant to this hypothesis:

288 Dillashaw & Okey, 1981, High School Chemistry Study
289 Strasler, 1981, CBE Program Evaluations
290 Bryant, et al., 1980, Disabled Readers
291 Hymel & Mathews, 1980, High School History Study
293 Smith, 1977, ERIC Review
297 Burrows & Okey, 1975, 4th and 5th Grade Geometry Study
298 Jones, 1974, Study II/Review
299 Fagan, 1976, Transportation-Environment Study
300 Taylor, 1975, Adaptive Mastery
301 Contreras, 1975, 3 Criterion Levels
302 Jones, 1974, Study III
303 Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy
304 Chiappetta & McBride, 1980, 9th Grade Chemistry Study
305 Ely & Minars, 1973, Self-Concept Study
306 Wentling, 1973, Auto Mechanics Study
307 Lawler, et al., 1974, Three CMI Strategies
309 Hymel & Mathews, 1980, High School History Study II
311 Burns, 1979, Mastery Learing "Box Scores"
312 Cohen, 1981, LRDS Dilemmas
313 Cohen, 1972, Omaha Project
314 Fiel & Okey, 1975, Graph Study
315 Harford County, 1979, HIRP
316 Cohen & Rodriquez, 1980, Mexican American Study
317 Ware, 1977, Map and Globe Study
318 Wyckoff, 1974, Anthropology Study
319 Block, 1974, Research Overview
320 Rubovits, 1975, Shop Classes

MASTERY LEARNING
Decision Display
#5

Restatement of issue as a hypothesis:

Remediation which focuses on the specific errors made by students on formative tests has a more positive effect on student achievement and retention than remediation which involves a general review of the original lesson content.

Item Number	Short Title	Quality Rating of Study (5=High)
Items which tend to support hypothesis:		
297	Burrows & Okey, 1975, 4th and 5th Grade Geometry Study	[4]
291	Hymel & Mathews, 1980, High School History Study	[3]
304	Chiappetta & McBride, 1980, 9th Grade Chemistry Study	[3]
306	Wentling, 1973, Auto Mechanics Study	[3]
321	Swanson & Denton, 1976, Secondary Chemistry Study	[3]
Items which tend to deny hypothesis:		
314	Fiel & Okey, 1975, Graph Study	[3]
Items which are inconclusive regarding the hypothesis:		
	None.	
Items which were excluded because they were weak:		
	None.	

Items which were excluded because they were judged to be irrelevant to this hypothesis:

287 Bloom, 1978, New Views of Learners
288 Dillashaw & Okey, 1981, High School Chemistry Study
289 Strasler, 1981, CBE Program Evaluations
292 Ward, 1979, Australian Math Study
293 Smith, 1977, ERIC Review
294 Ryan & Schmidt, 1979, Canadian Review/Studies
295 Jones, 1976, Grade 7 Geography Study
296 Block & Burns, 1976, Four Types of Research
298 Jones, 1974, Study II/Review
299 Fagan, 1976, Transportation-Environment Study
300 Taylor, 1975, Adaptive Mastery
301 Contreras, 1975, 3 Criterion Levels
302 Jones, 1974, Study III
303 Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy
305 Ely & Minars, 1973, Self-Concept Study
307 Lawler, et al., 1974, Three CMI Strategies
308 Dolan, 1977-78, Mastery Learning Status Report
309 Hymel & Mathews, 1980, High School History Study II
310 Hyman & Cohen, 1979, Ten Conclusions re: LFM
311 Burns, 1979, Mastery Learning "Box Scores"
312 Cohen, 1981, LRDS Dilemmas
313 Cohen, 1972, Omaha Project
315 Harford County, 1979, HIRP
316 Cohen & Rodriquez, 1980, Mexican American Study
317 Ware, 1977, Map and Globe Study
318 Wyckoff, 1974, Anthropology Study
319 Block, 1974, Research Overview
320 Rubovits, 1975, Shop Classes
322 Bloom, 1976, Human Characteristics and School Learning

BIBLIOGRAPHY

Item No.	Citation
319	Block, J.H. Mastery learning in the classroom: An overview of recent research. In J.H. Block (Ed.), Schools, society, and mastery learning. New York: Holt, Rinehart and Winston, Inc., 1974.
296	_____, & Burns, R.B. Mastery Learning. In L.E. Shulman (Ed.) Review of Education (Vol. 4). Itasca, IL: F.E. Peacock Publishers, Inc., 1976.
322	Bloom, B.S. Human Characteristics and School Learning. New York, NY: McGraw-Hill Book Co., 1976
287	_____. New views of the learner: Implications for instruction and curriculum. Educational Leadership, 1978, 35, 563-576.
290	Bryant, N.D., et al., Applying the mastery learning model to sight word instruction for disabled readers. New York: Columbia University, Teachers College, 1980. (ERIC/EDRS No. ED 197 290)
311	Burns, R.B. Mastery learning: Does it work? Educational Leadership, 1979, 37, 110-113.
297	Burrows, C.K., & Okey, J.R. The effects of a mastery learning strategy on achievement. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., March-April, 1975. (ERIC/EDRS No. ED 109 240)
304	Chiappetta, E.L., & McBride, J.W. Exploring the effects of general remediation on ninth graders' achievement of the mole concept. Science Education, 1980, 64, 609-614.
312	Cohen, S.A. Dilemmas in the use of learner responsive delivery systems. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, CA, April 1981.
313	_____. Research Report: Omaha Project. New York, NY, December 1972 (unpublished).
316	_____, & S. Rodriquez. Experimental results that question the Ramirez-Castaneda model for teaching reading to first grade Mexican Americans. The Reading Teacher, 1980, 34, 12-18.
301	Contreras, G. Mastery learning: The relationship of different criterion levels and aptitude achievement, retention, and attitude in a seventh grade geography unit. Ed.D. Dissertation, University of Georgia, Athens, GA, 1975. (ERIC/EDRS No. ED 111 739)

Item No.	Citation
288	Dillashaw, F.G., & Okey, J.R. The effects of a modified mastery learning strategy on achievement attitudes, and on-task behavior of high school chemistry students. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Ellenville, NY, April 1981. (ERIC/EDRS No. ED 201 515)
308	Dolan, L. The status of mastery learning research and practice. Administrator's Notebook, 1977-78, 26 (3).
305	Ely, D., & Minars, E. The effects of a large-scale mastery environment on students' self-concept. The Journal of Experimental Education, 1973, 41, (4), 20-22.
299	Fagan, J.S. The relationship of mastery procedures and aptitude to the achievement and retention of transportation-environmental concepts by seventh grade students. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA, April, 1976. (ERIC/EDRS No. ED 123 150)
314	Fiel, R.L., & Okey, J.R. The effects of formative evaluation and remediation on mastery of intellectual skills. Journal of Educational Research, 1975, 68, 253-255.
310	Hyman, J.S., & Cohen, S.A. Learning for mastery: Ten conclusions after 15 years and 3,000 schools. Educational Leadership, 1979, 37, 104-109.
291	Hymel, G.M., & Mathews, G.S. A mastery approach to teaching U.S. history: The impact on cognitive achievement and unit evaluation. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA, April 1980. (ERIC/EDRS No. ED 184 929)
309	_____. Effects of a mastery approach on social studies achievement and unit evaluation. The Southern Journal of Educational Research, 1980, 14, 191-204.
302	Jones, F.G. Mastery learning and geography: Effects upon achievement, retention, and time-to-completion. Paper presented at the Annual Meeting of the College and University Faculty of the National Council for the Social Studies, Chicago, IL, November 1974. (ERIC/EDRS No. ED 099 280)
295	_____. The effects of mastery and aptitude on learning, retention, and time. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA, April 1976. (ERIC/EDRS No. ED 126 381)

Item No.	Citation
298	_____. The effect of mastery and aptitude on learning, retention, and time. Ed. Dissertation, University of Georgia, Athens, GA, 1974. (ERIC/EDRS No. ED 108 981)
307	Lawler, R.M., Dick, W., & Riser, M. Mastery learning and remedial prescriptions in computer-managed instruction. The Journal of Experimental Education, 1974, 43 (2), 45-52.
303	Lueckemeyer, C.L., & Chiappetta, E.L. An investigation into the effects of a modified mastery strategy on achievement in a high school human physiology unit. Journal of Research in Science Teaching, 1981, 18, 269-273.
320	Rubovits, J.J. A classroom field experiment in mastery learning. Dissertation Abstracts International, 1975, 36, 2720A.
294	Ryan, D.W., & Schmidt, M. Mastery learning: Theory, research and implementation. Toronto: Ontario Department of Education, 1979. (ERIC/EDRS No. ED 169 683)
293	Smith, J.K. Perspectives on mastery learning and mastery testing. TM Report No. 63. Princeton, N.J.: ERIC Clearinghouse on Tests, Measurement and Evaluation, 1977.
289	Strasler, G.M., et al., An evaluation of competency-based school programs in a learning for mastery setting. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, CA, April 1981. (ERIC/EDRS No. ED 200 626)
321	Swanson, D.H., & Denton, J.J. A comparison of remediation systems affecting achievement and retention in mastery learning. Rochester, NY: Rochester Institute of Technology; College Station, TX: Texas A&M University, 1976. (ERIC/EDRS No. ED 131 037)
300	Taylor, S.S. The effects of mastery, adaptive mastery, and non-mastery models on the learning of a mathematical task. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., March-April 1975. (ERIC/EDRS No. ED 106 145)
315	The High Intensity Reading Program exemplary project study. Bel Air, MD: Board of Education of Harford County, June 1979.
292	Ward, G. Learning time and teaching for mastery. Occasional paper No. 15. Hawthorn, Victoria, Australia: Australian Council for Educational Research, August 1979. (ERIC/EDRS No. ED 183 596)

Item No.	Citation
317	Ware, A.E. A comparison of two mastery learning strategies relative to the effects upon achievement, retention, transfer and attitudes. Dissertation Abstracts International, 1977, 38, 3264A.
306	Wentling, T.L. Mastery versus nonmastery instruction with varying test item feedback treatments. Journal of Educational Psychology, 1973, 65, 50-58.
318	Wyckoff, D.b. A study of mastery learning and its effects on achievement of sixth grade social studies students. Dissertation Abstract International, 1974, 35, 5160A.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 287 LOCATION: NWREL Info. Center/Periodicals

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Bloom, B.S. New views of the learner: Implications for instruction and curriculum. Educational Leadership, 1978, 35, 563-576.

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Bloom, 1978, New Views of Learners

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Specific study designs and procedures are not detailed, but this is a well-done synthesis of learnings emerging from mastery learning research.

SYNOPSIS:

This article summarizes findings emerging from mastery learning research conducted by the author and his colleagues and students, as well as that conducted by other researchers in the U.S. and abroad. Treated at greater length and in greater detail in the author's 1976 book, Human Characteristics and School Learning, these findings offer refutations of several long-standing views of learners and the learning process. Implications of these findings for schooling practices are then presented.

ITEM NUMBER: 287 SHORT TITLE: Bloom, 1978, New Views of Learners

RESEARCHER'S FINDINGS:

Though it is commonly believed that slower learners are deficient in ability, research has shown that mastery learning techniques can enable a large proportion of slower learners to reach the same criterion of achievement as faster learners and to learn equally complex and abstract ideas. They can also apply these ideas to new problems and retain ideas equally well, in spite of the fact that their learning required more time and help than that of the faster learners.

"The typical result of...mastery learning studies...is that about 80 percent of students in a mastery class reach the same final criterion of achievement (usually at the A or B+ level) as approximately the top 20 percent of the class under conventional group instruction..."

"In the mastery learning studies, we typically find that on the first learning task of a new series the mastery and control classes do equally well. However, the mastery group tends to improve in learning on each subsequent learning task, while the control group...tends to remain the same or decline..."

In mastery learning settings "Students become more and more similar in their learning rate until the difference between fast and slow learners becomes very difficult to measure..."

RESEARCHER'S CONCLUSIONS:

"The use of mastery learning and related teaching-learning strategies at all levels of education from the primary school to the graduate and professional schools typically results in about four-fifths of students achieving at the same level as the upper one-fifth of students typically taught by the same teacher. Not only do these students evidence high levels of cognitive achievement on the tests used for grading purposes, they also do very well on measures of retention and higher mental processes when compared to the top one-fifth of the control group of students."

Mastery learning approaches result in (1) increased learning effectiveness of students; (2) confidence of students in their learning capabilities; and (3) improvements in mental health of students, because of accumulated history of successful learning experiences.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 288 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Dillashaw, F.G., & Okey, J.R. The effects of a modified mastery learning strategy on achievement attitudes, and on-task behavior of high school chemistry students. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Ellenville, NY, April 1981. (ERIC/EDRS No. ED 201 515)

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Dillashaw & Okey, 1981, High School Chemistry Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE __ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a well-done study which clearly revealed the effects of different mastery learning approaches with secondary science students.

SYNOPSIS:

In this study 156 first-year chemistry students were divided into three groups to receive instruction. The instructional content was the same for all three groups, but (1) Group 1 had no diagnostic quizzes or remediation activities; (2) Group 2 had student-graded quizzes and student-selected remediation activities as part of their course of study; and (3) Group 3 took diagnostic tests and teacher-directed remediation activities as part of their regular class instruction. Groups 2 and 3 were described as receiving a "modified" mastery learning approach, as they went through only two cycles of diagnosis and remediation. Students completed a series of three achievement tests and an attitude questionnaire, and classroom observers kept records of the incidence of on-task behavior.

ITEM NUMBER: 288 SHORT TITLE: Dillashaw & Okey, 1981, High School Chemistry Study

RESEARCHER'S FINDINGS:

On all achievement tests both the teacher-managed and student-managed mastery learning groups (Groups 2 and 3) significantly outscored the control group.

There were no significant differences among groups in attitudes toward science and science instruction.

The average on-task behavior of each of the mastery learning groups was significantly higher than that of the control group, but they were not significantly different from each other.

RESEARCHER'S CONCLUSIONS:

The modified mastery learning strategy influenced on-task behavior and achievement, indicating that high school chemistry teachers may successfully employ such a strategy to increase the on-task behavior and achievement of their students. The lack of significant differences between the two experimental groups suggested that assigned remediation may not be necessary to bring about achievement gains; simply having remediation activities available for students to use on their own may be sufficient.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 289 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Strasler, G.M., et al., An evaluation of competency-based school programs in a learning for mastery setting. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, CA, April 1981. (ERIC/EDRS No. ED 200 626)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Strasler, et al., 1981, CBE Program Evaluations

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

These comparative evaluation studies were well-designed and conducted.

SYNOPSIS:

This report describes evaluation procedures and results of two evaluation efforts conducted in South Carolina schools in 1979-80. The Competency-based Middle School Program was designed to help students in grades 6, 7 and 8 to gain necessary skills in language arts, mathematics, science and social studies. The Competency-based Secondary School Program was designed to equip students in grades 9, 10 and 11 with skills in language arts, mathematics, consumer economics and citizenship. Students in both programs were taught via a mastery learning program based on the work of Carroll, Bloom and Block and featuring (1) measurable student objectives; (2) an instructional approach utilizing diagnosis, feedback and alternative learning strategies; (3) measuring and testing procedures which accurately evaluate student mastery; and (4) presentation of student outcomes to the public. Participants included all students in the two program schools who did not demonstrate grade level mastery on pretests. Both programs were evaluated using comparison group designs.

ITEM NUMBER: 289 SHORT TITLE: Strasler, 1981, CBE Program Evaluations

RESEARCHER'S FINDINGS:

Middle School Program: Program students outperformed controls in mathematics (grades 6, 7 and 8), science (grades 6 and 8) and social studies (grade 6). No differences were noted between program and control students in most other areas, but control students outperformed project students in social studies (grade 7).

Secondary School Program: Project students outperformed controls in language arts (grades 9, 10 and 11), mathematics (grades 9 and 10), and consumer economics (grade 9). No differences were found in other areas, with the exception of grade 9 citizenship, in which control students outperformed project students.

RESEARCHER'S CONCLUSIONS:

None drawn.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 290 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Bryant, N.D., et al., Applying the mastery learning model to sight word instruction for disabled readers. New York: Columbia University, Teachers College, 1980. (ERIC/EDRS No. ED 197 290)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Bryant, et al., 1980, Disabled Readers

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Numerical data are not presented, but this small-scale study convincingly demonstrated the efficacy of the mastery learning strategy.

SYNOPSIS:

This study was designed to determine if the use of a mastery learning model with reading disabled children would enable those children to master three reading subskills having to do with sight reading. The 32 disabled readers, ages 7-13, received nine 30-minute lessons over a three-week period, during which each of the sight vocabulary skills was practiced to mastery. Identical pre- and posttests were administered one day prior to instruction and one day after the three-week unit was completed.

The main features of the mastery learning program used with the children included (1) limiting teaching unit size (teaching only a few words at a time); (2) providing focus (including clear statements of learning expectations, prompting and providing corrective feedback); (3) distributed practice and review across several sessions; (4) discrimination training (pointing out unique features in words); and (5) training for transfer (presenting words in context as well as in isolation).

ITEM NUMBER: 290 SHORT TITLE: Bryant, et al., 1980, Disabled Readers

RESEARCHER'S FINDINGS:

Posttest scores indicated that the children were able to read 90 percent of the training words presented in lists and 89 percent of the training words presented in sentences. They retained 85 to 90 percent of the words taught each week and were able to complete the visual discrimination tasks with 70 to 80 percent accuracy.

RESEARCHER'S CONCLUSIONS:

"Results indicated that sight word instruction based on the mastery learning model incorporating the learning principals of limiting teaching unit size, providing focus, distributed practice and review, discrimination training and training for transfer was effective. At least 80 percent of the children who received instruction were able to reach a high level of mastery."

"The mastery learning model appears to provide an effective technique for instructing learning disabled chidren. However, additional instructional refinements may be necesary to increase its effectiveness."

REVIEWER'S NOTES AND COMMENTS:

Instructional and testing materials are appended to this report.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 291 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Hymel, G.M., & Mathews, G.S. A mastery approach to teaching U.S. history: The impact on cognitive achievement and unit evaluation. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA, April 1980. (ERIC/EDRS No. ED 184 929)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Hymel & Mathews, 1980, High School History Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

The treatment period was short, but the efficacy of the mastery learning approach is convincingly demonstrated.

SYNOPSIS:

This study examined the effects of three different instructional approaches on the achievement and attitudes of high school history students. The 69 participating students were divided into three treatment groups and presented a two-week learning unit on World War II. Treatment I entailed the use of highly specific formative tests and learning correctives (two of the major features of the mastery learning approach). Treatment II provided students with relatively general formative tests and learning correctives (and, thus, represented a less rigorous mastery learning approach). Treatment III involved relatively general formative tests and included no learning correctives. Students completed a 46-item objective test and an attitude questionnaire.

ITEM NUMBER: 291 SHORT TITLE: Hymel & Mathews, 1980, High School History Study

RESEARCHER'S FINDINGS:

Treatment I students (specific tests, learning correctives) outperformed Treatment II students (general tests, learning correctives), but not to a significant degree. Both Treatment I and Treatment II students significantly outperformed Treatment III students (general tests, no learning correctives).

The Treatment I students recorded significantly more favorable unit evaluations (attitude toward the history unit) than did students in Treatments II or III. There were no significant differences between Treatments II and III.

RESEARCHER'S CONCLUSIONS:

"With respect to cognitive achievement...this study suggests that the use of a combined feedback-corrective strategy at the unit level in social studies instruction is more efficacious than the employment of only general formative testing with no follow-up prescription of learning correctives."

"With respect to the students' evaluation of the two-week unit...the findings of this study suggest that a mastery approach involving a combined feedback-corrective strategy of a highly specific nature is more effective than (a) a combined feedback corrective strategy of a relatively general nature or (b) a strategy employing only general formative testing with no learning correctives."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 292 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Ward, G. Learning time and teaching for mastery. Occasional paper No. 15. Hawthorn, Victoria, Australia: Australian Council for Educational Research, August 1979. (ERIC/EDRS No. ED 183 596)

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Ward, 1979, Australian Math Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ____

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a well-designed and conducted small-scale study in which the findings of previous research are corroborated.

SYNOPSIS:

The purpose of this study was to investigate the effects of a mastery learning strategy on the required learning time, achievement and retention of students. Fifty-nine boys in grade 8 were divided into an experimental and a control group; each of these groups was subdivided into higher-ability and lower-ability students. All students studied three units of matrix algebra. Both experimental and control students read instructions, noted the time when they began working, studied at their own pace, responded to questions in the text, noted the time when they finished studying, and took a unit test. Control students then moved on to the next unit, while experimental students were required to restudy the material if they did not demonstrate mastery on the test. Tutoring was provided for students who did not achieve mastery after taking the test three times. Control students were required to restudy until mastery was achieved for Unit 3 only. All students took a summative test at the end of the three-unit instructional period and a retention test ten days later.

ITEM NUMBER: 292 SHORT TITLE: Ward, 1979, Australian Math Study

RESEARCHER'S FINDINGS:

The experimental group scored significantly higher than the control group on both the summative and retention tests. The treatment was equally effective for both ability levels.

Test scores of the experimental group increased over the sequence; those of the control group declined. The control group required more time to learn the third unit to mastery than did the experimental group. Treatment aided the learning efficiency (test scores/learning time) and the retention of low-ability students.

RESEARCHER'S CONCLUSIONS:

"The diagnostic review procedure resulted in progressively higher achievement scores over a series of hierarchical units and in higher summative and retention test scores; the efficiency of learning such units in terms of the mark per unit became greater across the sequence of units; the time spent in review declined across the units."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 293 LOCATION: NWREL Info. Center/Pamphlet File

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Smith, J.K. Perspectives on mastery learning and mastery testing. TM Report No. 63. Princeton, N.J.: ERIC Clearinghouse on Tests, Measurement and Evaluation, 1977.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Smith, 1977, ERIC Review

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Detail is sparse on the studies reviewed. Conclusions are reasonable in light of the findings reported.

SYNOPSIS:

This monograph addresses such topics as defining mastery learning, implementing a mastery learning strategy, constructing mastery tests, and so forth. This abstract is concerned with the section of the monograph which is a review of research on the question, "Does mastery learning work?" Findings from 17 studies are reported and synthesized. The outcome areas investigated in these studies included achievement in math, physical science, foreign languages, business, economics, biology, statistics, English, reading, social studies and psychology.

ITEM NUMBER: 293 SHORT TITLE: Smith, 1977, ERIC Review

RESEARCHER'S FINDINGS:

Fifteen of the 17 studies reported findings in favor of mastery learning at various levels of significance. Two studies found no differences between the achievement of experimental and control subjects.

Many studies which reported findings favoring mastery learning also reported that the gains, though real, were not as great as was originally predicted.

RESEARCHER'S CONCLUSIONS:

"Most of the subject areas in which mastery learning has been successful have some common characteristics. Typically, they are subjects in which there is a natural sequential ordering of the units (such subjects as math, science and foreign language). One does not see a number of successes in subjects such as English composition, social studies, reading, and so forth. These are areas in which the content does not lend itself as well to a sequential ordering. Furthermore, courses for which mastery strategies work best typically involve students who have the basic prerequisites for the course, but little or no prior knowledge of the subject matter."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 294 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Ryan, D.W., & Schmidt, M. Mastery learning: Theory, research and implementation. Toronto: Ontario Department of Education, 1979. (ERIC/EDRS No. ED 169 683)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Ryan & Schmidt, 1979, Canadian Review/Studies

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a very complete research review, and program activities and outcomes are clearly spelled out.

SYNOPSIS:

This extensive report offers a discussion of mastery learning theory and procedures followed by a review of research on mastery learning and, finally, reports of evaluations of two specific mastery learning programs.

Reported here are the highlights of the literature review and findings emerging from the evaluation efforts. The review involved 15 studies. One evaluation concerned the Chicago Mastery Learning Reading Program, in which ten elementary classes participated during the 1976-77 school year. Another ten classes from the same schools served as controls. The other evaluation report described procedures and outcomes of the Mastery Learning in Social Studies Project in Camden, South Carolina. Twenty-eight classes (K-5) participated. There were no controls. Both programs were characterized by the provision of ongoing testing and feedback/corrective procedures, as well as other major features of the mastery learning strategy put forth by Carroll, Bloom and Block.

ITEM NUMBER: 294 SHORT TITLE: Ryan & Schmidt, 1979, Canadian Review/Studies

RESEARCHER'S FINDINGS:

Research review. Selected findings include: (1) that the evidence definitely favors the mastery learning approach in the acquisition of cognitive skills; (2) that mastery learning reduces variability in achievement and retention within groups; (3) that mastery learning enhances affective outcomes; (4) that slower learners tend to learn more quickly as they progress through a series of mastery-taught units; and (5) the unit mastery requirement has been shown to have the strongest impact on student learning of any of the components of the strategy.

Chicago Mastery Learning Reading Program. The Iowa Test of Basic Skills Reading Comprehension scores of program classes were significantly superior to those of control classes. The correlation between reading gain and prior achievement was significantly smaller among program students than among controls.

Mastery Learning in Social Studies Project. Learning gains were encouraging for all students and statistically significant for kindergarten students. On standardized tests, scores were significantly higher than expected for grades 1-5. The attitude questionnaire administered to grades 3-5 showed favorable results. The parent questionnaire was favorable, though parents felt they might be receiving too much information about their children's progress.

RESEARCHER'S CONCLUSIONS:

Review findings/conclusions are listed above.

Both evaluations concluded with favorable statements.

REVIEWER'S NOTES AND COMMENTS:

There is some overlap between the studies reviewed by Ryan and Schmidt and those reviewed by Smith (Item No. 293).

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 295 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Jones, F.G. The effects of mastery and aptitude on learning, retention, and time. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA, April 1976. (ERIC/EDRS No. ED 126 381)

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Jones, 1976, Grade 7 Geography Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT _X_ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE _X_ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study was well-designed and conducted though, as the researcher points out, the findings may not apply to students generally.

SYNOPSIS:

This study compared a mastery learning approach with a non-mastery approach to determine their relative effects on student achievement, retention and time required to learn in a self-instructional geography unit. Twenty classes of 7th graders (539 students) were divided into experimental and control groups. Entering aptitude data were recorded. All students read narrative material, completed workbook activities and took a summative test at the end of the unit. However, whereas control students took only one review test, experimental students took two such tests and participated in various remediation activities as needed to achieve mastery on sub-parts of the unit.

ITEM NUMBER: 295 SHORT TITLE: Jones, 1976, Grade 7 Geography Study

RESEARCHER'S FINDINGS:

For middle-aptitide students (only) the mastery approach produced significantly greater achievement than the non-mastery instruction. For high- and middle-aptitude students the mastery learning approach enhanced retention of material learned. There were no significant achievement differences between low-ability experimental and control students on these measures.

The best predictor of achievement and retention was entering aptitide. Control students spent less time studying the unit than did experimental students.

RESEARCHER'S CONCLUSIONS:

The ineffectiveness of the treatment with low-aptitude students was attributed to the unusually low reading ability levels of these students.

"The results of the present study indicate that when self-instructional mastery procedures are used, they do not facilitate greater post-test average performance than non-mastery procedures. The findings are contrary to [several previous researchers]... This study found that [these mastery procedures] facilitated greater retention than non-mastery procedures."

This study did not support previously reported findings to the effect that learning becomes more efficient over a series of sequenced learning units.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 296 LOCATION: PSU Library

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Block, J.H., & Burns, R.B. Mastery Learning. In L.E. Shulman (Ed.) Review of Education (Vol. 4). Itasca, IL: F.E. Peacock Publishers, Inc., 1976.

DESCRIPTOR: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Block & Burns, 1976, Four Types of Research

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 [5] (Strong)

BRIEF DISCUSSION OF RATING:

This is an excellent, detailed review which discriminates among the kinds and quality of research conducted. History, theory and implications sections are also very informative and useful.

SYNOPSIS:

This paper begins with a discussion of the history of mastery learning theory and descriptions of the major approaches to delivering mastery instruction. The majority of the document is devoted to a detailed review of research on mastery learning. The reviewers divided this research into four categories: (1) those studies which have asked "does mastery learning work?"; (2) those which have asked what by-products (chiefly affective outcomes) result from mastery learning approaches; (3) studies which have sought to determine why mastery learning works; (4) those which have asked how mastery learning works. Strengths and drawbacks of the studies selected for review are discussed. The paper concludes with some practical and theoretical implications for educators to consider. This abstract focuses on the first two kinds of research reviewed by the authors.

ITEM NUMBER: 296 SHORT TITLE: Block & Burns, 1976, Four Types of Research

RESEARCHER'S FINDINGS:

Forty-one studies on cognitive outcomes were reviewed. More than half of these involved students at the college level, and the rest spanned the elementary-secondary range. "Findings...suggest that mastery approaches to instruction do work. The approaches have not as yet had as large effects on student learning as their advocates propose are possible, but they have had consistently positive effects. In quantitative terms, mastery approaches have usually produced greater student learning than non-mastery approaches, and they have usually produced relatively less variability in this learning. In qualitative terms, mastery approaches have typically helped students acquire higher order learning, though there is some questions as to whether this higher order learning has been retained."

Nineteen of the studies reviewed were concerned with affective outcomes--attitude, self-concept, and so forth. "Mastery approaches have typically elicited more favorable affective responses from students than their non-mastery counterparts and, in some cases, significantly more favorable responses... Two potential affective costs...seem to be increased test anxiety...and sometimes inordinately high levels of course withdrawals in PSI approaches."

RESEARCHER'S CONCLUSIONS:

The authors make a number of recommendations, including increased research, development and evaluation of mastery learning approaches.

REVIEWER'S NOTES AND COMMENTS:

A copy of the paper may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 297 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Burrows, C.K., & Okey, J.R. The effects of a mastery learning strategy on achievement. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., March-April, 1975. (ERIC/EDRS No. ED 109 240)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Burrows & Okey, 4th & 5th Grade Geometry Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT _X_ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE _X_ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study was well-designed and conducted. Treatment differences were clearly specified and outcomes clearly displayed.

SYNOPSIS:

This study examined the effects of four different instructional treatments on the geometry achievement of intermediate level students. Eighty-four students from grades four and five were assigned to four groups and received instruction in 14 geometry skill areas. Group 1 received instruction from the 14 skill booklets on an individual basis. Teachers clarified terms, answered procedural questions and recorded student progress. Group 2 received the same instruction as Group 1, supplemented by stated performance objectives for each skill area. Group 3 received the same basic instruction as the first two groups, supplemented with sample test items for each skill. Students were instructed to study the sample test items. Group 4 was instructed as Group 3 was, but they also took a diagnostic test after studying each skill booklet, received them back quickly, and received additional instruction as needed until they demonstrated mastery. Instruction took place for 45 minutes daily over a 14-day period. All students were tested at the end of the 14-skill instructional series and again two weeks later.

ITEM NUMBER: 297 SHORT TITLE: Burrows & Okey, 1975, 4th and 5th Grade Geometry Study

RESEARCHER'S FINDINGS:

"...Group 4 (the mastery strategy) scored significantly higher than all other treatment groups. There were no significant differences in achievement among the first three groups... The same pattern of findings as on the posttest held for the retention test given two weeks later."

"Students of low mathematics aptitude who received the mastery treatment performed better (on the average) than high mathematics aptitude students in the control group... Fourth graders of low mathematics aptitude who received the mastery treatment scored as well on the posttest as fifth graders of high mathematics aptitude in the control group."

RESEARCHER'S CONCLUSIONS:

"Providing students with a combination of objectives, test items, diagnostic tests and remediation in conjunction with an individualized mathematics program significantly altered achievement. The effectiveness of the comprehensive mastery strategy was significantly greater than the use of the individual components of objectives, test items, or individualized materials. It was with low aptitude students that the mastery strategy was especially beneficial."

"The findings strongly support Bloom's hypothesis that many students can achieve at high levels if instruction is organized appropriately... The results...support Collin's finding that a mastery strategy will have a pronounced effect on pupil achievement when compared to instruction with no (or limited) built-in provisions for diagnosis and remediation."

REVIEWER'S NOTES AND COMMENTS:

None.

52

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 298 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Jones, F.G. The effect of mastery and aptitude on learning, retention, and time. Ed. Dissertation, University of Georgia, Athens, GA, 1974. (ERIC/EDRS No. ED 108 981)

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Jones, 1974, Study II/Review

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT _X_ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE _X_ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This analysis both identifies areas where the claims for mastery learning are substantiated and those for which sufficient evidence is not available. It is a good review of a modest number of studies.

SYNOPSIS:

This is a report of the same study described in Item No. 295. However, a detailed review of the literature is included in this version of the report, and findings from that review will be presented here. Nine studies (at the college, junior high and elementary levels) which examined the relationship between mastery learning and achievement were reviewed. Outcome areas included psychology, social studies, science and language arts.

Four studies (three elementary, one high school) examined the relationship between mastery learning and retention in mathematics and automobile mechanics (the high school study). Studies in other (non-outcome) areas are also reviewed.

ITEM NUMBER: 298 SHORT TITLE: Jones, 1974, Study II/Review

RESEARCHER'S FINDINGS:

"The nine studies which compared mastery with non-mastery support the idea that mastery procedures facilitate learning significantly more than non-mastery or control procedures."

Retention scores of mastery; classes were either somewhat higher than those of non-mastery classes (2 studies) of significantly higher (2 studies).

RESEARCHER'S CONCLUSIONS:

"Empirical studies, comparing a mastery to a non-mastery procedure, predictably, show support across a wide range of content areas. However, there has been no systematic attempt to determine whether slow learning students benefit from constant correction and feedback or whether, as Bloom claims, mastery can induce learning for nearly all students..."

Further research is recommended.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 299 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Fagan, J.S. The relationship of mastery procedures and aptitude to the achievement and retention of transportation-environmental concepts by seventh grade students. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA, April, 1976. (ERIC/EDRS No. ED 123 150)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Fagan, 1976, Transportation-Environment Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS __

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Treatment procedures and analytical methods were fully described, but numerical data were not presented.

SYNOPSIS:

Seventeen classes of 7th graders studied and were tested on material from a text developed by the researcher and entitled Transportation and the Environment. Mastery learning procedures were used with eight of the classes. This involved: (1) teacher introduction of the lesson and student overview of the material; (2) teacher review of key concepts with students; (3) student study, involving reading, listening to tapes and to teacher explanation of key concepts, and student statements indicating understanding; (4) students completing review sheets and teacher going over these with students; (5) formative testing; (6) test scoring; (7) restudy by students not achieving mastery (80% correct answers); (8) teacher-initiated classroom drill; (9) second formative testing and scoring; (10) final summative testing and scoring; and (11) adminstration of delayed posttest four weeks later. The nine control classes experienced only procedures 1-6, and 10-11. Data on entering aptitude were recorded and examined in relation to outcomes.

ITEM NUMBER: 299 SHORT TITLE: Fagan, 1976, Transportation-Environment Study

RESEARCHER'S FINDINGS:

"The use of mastery learning procedures showed no superiority over non-mastery procedures in achievement or retention of concepts in the instructional unit... Both achievement and retention correlated highly with verbal ability regardless of treatment."

RESEARCHER'S CONCLUSIONS:

"This study failed to show that the corrective/feedback component of the mastery procedures had any effect on achievement or retention. Rather, previous ability, as measured by a vocabulary subtest, proved to be the dominant factor."

A list of recommendations for follow up research are offered.

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 300 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Taylor, S.S. The effects of mastery, adaptive mastery, and non-mastery models on the learning of a mathematical task. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., March-April 1975. (ERIC/EDRS No. ED 106 145)

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Taylor, 1975, Adaptive Mastery

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This was a good study, although the researcher did not address the fact that the non-mastery students did as well as either of the mastery groups.

SYNOPSIS:

This study compared the effects of the computer-based instructional strategies on achievement and retention in basic mathematics skill areas. Fifty-one students in grade 7 were divided into three groups. One group was instructed with a "typical mastery learning model," which involved initial instruction, followed by a fixed amount of practice. Formative tests were given and appropriate correctives prescribed for each objective. Students took a summative test and a retention test. The second group was instructed with an "adaptive mastery learning model," which was similar to the first model, except that the amount of practice was varied according to each student's performance on the practice items. In this approach, practice, formative evaluation and remedial instruction were combined. The third group received instruction, practice and took a summative test. No formative evaluation was conducted and correctives were not provided. The study also examined the differential effects of two practice formats--"clustered," in which students received all practice items relating to one objective consecutively; and "mixed," in which students received all the practice items for several objectives mixed together.

ITEM NUMBER: 300 SHORT TITLE: Taylor, 1975, Adaptive Mastery

RESEARCHER'S FINDINGS:

There were no significant differences among groups either on the posttest or the retention test. The adaptive mastery strategy required less time than the other strategies to produce the same results. There were no differences in effects produced by the clustered and mixed practice formats.

RESEARCHER'S CONCLUSIONS:

"In summary, the results of the present study indicate that the adaptive mastery learning model produced the same high level of performance as the other two models, but required less time, fewer practice items, and minimized overpractice. In addition, the adaptive mastery learning model more readily adjusts to the difficulty of the objective. Thus, it was concluded that the use of student performance on practice items is an effective and efficient means of predicting mastery."

REVIEWER'S NOTES AND COMMENTS:

None.

53

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 301 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Contreras, G. Mastery learning: The relationship of different criterion levels and aptitude achievement, retention, and attitude in a seventh grade geography unit. Ed.D. Dissertation, University of Georgia, Athens, GA, 1975. (ERIC/EDRS No. ED 111 739)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Contreras, 1975, 3 Criterion Levels

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study was well-designed and conducted. Data are clearly displayed and interpreted.

SYNOPSIS:

In this study 24 classes of seventh graders from five schools studied a unit called Population Growth in the United States and Mexico. Students were divided into three groups; one group was required to achieve 90 percent mastery on each of the 41 lessons which made up the learning unit, one was required to achieve 80 percent mastery, and one was required to achieve 70 percent mastery. At the completion of the 15-day instructional period, all students took a posttest and a delayed posttest. Entering aptitude, as measured by a vocabulary test, was recorded and examined against learning outcomes. An attitude-toward-geography questionnaire was administered to a portion of the participants.

ITEM NUMBER: 301 SHORT TITLE: Contreras, 1975, 3 Criterion Levels

RESEARCHER'S FINDINGS:

There were no significant achievement differences among the three groups. There was a significant correlation between entering aptitude and achievement scores. There were no significant retention differences among the three groups. There was a significant correlation between entering aptitude and retention test scores. Attitude toward the unit was not affected by differences in criterion level requirements. Entering aptitude did not affect attitudes toward the learning unit.

RESEARCHER'S CONCLUSIONS:

"The results of this study of mastery learning indicated no significant difference by treatment level criterion on the summative measures of achievement, retention, and attitude... These findings suggest that differences in achievement were mostly a function of the aptitude attributed to individual students at the beginning of instruction."

REVIEWER'S NOTES AND COMMENTS:

A review of the literature is included in this paper. As that review concerns the same studies reviewed by other writers and reported on elsewhere in these abstracts, it is not presented here.

60

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 302 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Jones, F.G. Mastery learning and geography: Effects upon achievement, retention, and time-to-completion. Paper presented at the Annual Meeting of the College and University Faculty of the National Council for the Social Studies, Chicago, IL, November 1974. (ERIC/EDRS No. ED 099 280)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Jones, 1974, Study III

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT X FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This is another report of the same study described in Item No. 295.

ITEM NUMBER: 302 SHORT TITLE: Jones, 1974, Study III

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 303 LOCATION: PSU Library

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Lueckemeyer, C.L., & Chiappetta, E.L. An investigation into the effects of a modified mastery strategy on achievement in a high school human physiology unit. Journal of Research in Science Teaching, 1981, 18, 269-273.

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study was well done, and its findings were clearly displayed.

SYNOPSIS:

This study examined the relative effects of traditional instruction and a modified mastery strategy on the achievement and retention of high school biology students. Participants included 185 tenth graders in 12 introductory biology classes, 91 of whom received the experimental treatment and 94 of whom served as controls. Over a six-week period, all students studied a three-unit course in human physiology and took unit tests, a summative achievement test, and a retention test four weeks later. During instruction, control students moved on to the next unit in the series after taking a unit test. Experimental students were assigned corrective activities for each unit objective on which at least 80 percent mastery was not achieved; then worked on the corrective activities for two class periods; then took an alternative, second unit test before moving on to the next learning unit. The strategy was described as "modified" mastery learning because experimental students were given a finite--rather than unlimited--amount of extra time and remedial intruction.

ITEM NUMBER: 303 SHORT TITLE: Lueckemeyer & Chiappetta, 1981, Modified Mastery Strategy

RESEARCHER'S FINDINGS:

"The variance in achievement accounted for due to treatment alone with effects of aptitude controlled was only 3 percent. Although this is a statistically significant finding, it is questionable whether such a limited effect on achievement is worth the considerable time required for the development and management of such an instructional program."

There were no statistically significant retention differences.

RESEARCHER'S CONCLUSIONS:

"A modified mastery learning format will result in only a small degree of improvement in the achievement of students on high school human physiology subject matter. This type of instruction will not be effective in impacting a reduction in variation in achievement nor in retention of subject matter knowledge. Thus, the mastery learning approach employed in this study does not seem practical for the biology classroom."

REVIEWER'S NOTES AND COMMENTS:

A copy of the article may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 304 LOCATION: PSU Library

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Chiappetta, E.L., & McBride, J.W. Exploring the effects of general remediation on ninth graders' achievement of the mole concept. Science Education, 1980, 64, 609-614.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Chiappetta & McBride, 1980, 9th Grade Chemistry Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT _X_ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE _X_ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ____

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This was a good study, although as the researchers point out, factors other than the treatments may have influenced outcomes.

SYNOPSIS:

This study investigated the effects of two degrees of remediation upon the chemistry achievement of ninth grade students. Four science classes (99 students) and two teachers participated. All classes studied three instructional units having to do with chemical changes, atoms, molecules and moles. Teacher A taught one class which received no remedial activities and one in which students failing to achieve at the 80 percent level on unit tests were required to study a self-instructional remediation packet addressing all the unit objectives. Teacher B taught one class which received no remedial activities and one class in which students not achieving at 80 percent on unit tests were required to study a self-instructional packet, take another test, and if still achieving below 80 percent, to study a second general remediation, self-instructional packet. The four groups were given a criterion-referenced posttest over the mole concept objectives in the second and third units.

ITEM NUMBER: 304 SHORT TITLE: Chiappetta & McBride, 1980, 9th Grade Chemistry Study

RESEARCHER'S FINDINGS:

There were no significant differences between the scores of the two groups of students instructed by Teacher A (no remediation and one remediation opportunity), nor were there any significant differences between the two groups instructed by Teacher B (no remediation and two remediation opportunities).

RESEARCHER'S CONCLUSIONS:

"General remediation on a limited basis does not appear to be a useful modification of Bloom's mastery learning strategy with ninth graders studying the mole concept. Providing students with one or two opportunities to study a new set of material on a unit that they did not master at the 80 percent level, apparently has no effect on achievement."

The researchers also speculated that the low level of interest normally exhibited by ninth graders in physical science, together with the highly abstract nature of the learning material, might have contributed to the inefficacy of the treatments.

REVIEWER'S NOTES AND COMMENTS:

A copy of the article may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 305 LOCATION: NWREL Info. Center/Periodicals

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Ely, D., & Minars, E. The effects of a large-scale mastery environment on students' self-concept. The Journal of Experimental Education, 1973, 41, (4), 20-22.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Ely & Minars, 1973, Self-Concept Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 [2] 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

The age level of the students and the outcomes examined make this study a little off-purpose for the present project. However, it offers interesting evidence for the self-concept benefits conferred upon older students in an individualized mastery program.

SYNOPSIS:

This study compared the effects of a university level mastery learning approach with those of conventional instruction on student self-concept. Participants included 106 freshman engineering majors. Half of these received conventional instruction and half were assigned to an instructional system called Preprofessional Individually Paced Instruction (PIPI). PIPI features "a 40 semester credit hour integrated curriculum consisting of freshman and sophomore level math, chemistry, English, speech, physics, computer science and computer graphics." PIPI is self-pacing and employs mastery learning concepts. Students are given the time they need to work on the grade they desire. Most testing is of a formative nature. Students are allowed as many attempts as they need to accomplish the instructional objectives. At the end of the first semester the 91 students who were present were given the Tennessee Self-Concept Scale.

ITEM NUMBER: 305 SHORT TITLE: Ely & Minars, 1973, Self-Concept Study

RESEARCHER'S FINDINGS:

PIPI students had an overall higher self-concept rating. Groups were equal on measures of self-criticism. PIPI students had higher self-concepts with regard to personal self and family self. Groups were roughly equal on self-satisfaction ratings.

RESEARCHER'S CONCLUSIONS:

"...the results of this study indicate that educational environments that incorporate mastery learning philosophy, self-pacing, and formative evaluation that features direct instructor-to-student-interaction can facilitate the formation of higher student self-concept."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 306 LOCATION: NWREL Info. Center/Periodicals

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Wentling, T.L. Mastery versus nonmastery instruction with varying test item feedback treatments. Journal of Educational Psychology, 1973, 65, 50-58.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Wentling, 1973, Auto Mechanics Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This was a good study, but the reasons these results were obtained were not entirely clear to the researchers nor to the present reviewer.

SYNOPSIS:

This study investigated the effects of two instructional methods, three kinds of feedback and two levels of ability on student achievement, retention and attitude. Participants included 106 high school boys enrolled in a general auto mechanics course. Instruction was delivered in two ways. Half the students received nonmastery instruction, which involved studying each instructional booklet, taking a test and receiving a grade. The other half received mastery instruction, which involved studying each booklet, taking a test, and if 80 percent mastery was not achieved, repeating the study-test cycle up to three times as needed. Of the six participating classes, two received no specific-item feedback on the tests they took; two received partial item feedback (knowledge of correctness of response); and two received knowledge of correctness of response plus instructions to continue on each item until the correct response was discovered. Students took a mental ability test at the outset so that each of the six classes contained a low- and a high-ability group. Summative achievement and delayed retention tests were administered, and students completed an attitude inventory.

ITEM NUMBER: 306 SHORT TITLE: Wentling, 1973, Auto Mechanics Study

RESEARCHER'S FINDINGS:

Mastery learning classes significantly outperformed nonmastery learning classes on achievement measures. There were no differences between these groups on attitude measures. The mastery learning strategy took significantly more time to complete than did the nonmastery treatment. Mastery classes significantly outperformed nonmastery students on the retention test.

The partial feedback treatment students outperformed students receiving either no feedback or total feedback on the summative achievement test. Total feedback treatment students had the lowest achievement. Partial feedback students had the most positive attitudes. Feedback treatments had no significant effects on retention.

High-ability students outperformed low-ability students on the summative achievement and retention tests and also had more positive attitudes.

RESEARCHER'S CONCLUSIONS:

"An apparent conclusion with regard to the learning strategy effect is that both immediate achievement and delayed achievement are superior for the mastery learning strategy over the nonmastery strategy. However, the amount of time spent on instruction was 50 percent greater for the mastery strategy with no significant difference in attitude toward instruction. A practical consideration involves a decision with regard to trading time for achievement. In some instances, where a certain level of achievement is demanded, the trade-off of time for achievement may be justifiable."

"...the partial feedback treatment was superior and should be utilized to a greater extent if attitude toward instruction is...important to long-term learning..."

REVIEWER'S NOTES AND COMMENTS:

A copy of the journal article may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 307 LOCATION: NWREL Info. Center/Periodicals

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Lawler, R.M., Dick, W., & Riser, M. Mastery learning and remedial prescriptions in computer-managed instruction. The Journal of Experimental Education, 1974, 43 (2), 45-52.

DESCRIPTORS: Mastery Learning, Computer Assisted Instruction

SHORT TITLE: Lawler, et al., 1974, Three CMI Strategies

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

The researchers identify some procedural errors which may have affected outcomes, but this is nevertheless a good study.

SYNOPSIS:

In this study three experimental groups and one control group were compared in terms of the effects of the differential instruction they received on achievement, attitude and time-to-completion in an instructional unit. Participants included 167 undergraduates in a health education course. Of these, 41 received traditional classroom instruction and 126 were divided into three groups which experienced different computer-managed instructional treatments. One of these, Remedial Prescription-Forced Mastery, involved the use of remedial prescriptions for students not achieving criterion (80%) on module tests, followed by retesting, additional remediation, additional testing, and so on, until criterion was reached. In the Remedial Prescription-Forced progression group, the remedial prescriptions were presented, but students were not retested. In the Forced Progression group, neither prescriptions nor retesting took place. All students were given a pretest and summative posttest, an attitude questionnaire before and after instruction, and records were kept on computer time used.

ITEM NUMBER: 307 SHORT TITLE: Lawler, et al., 1974, Three CMI Strategies

RESEARCHER'S FINDINGS:

All three groups participating in the computer-managed instruction treatments outperformed the group receiving traditional classroom instruction. The group which was given remedial prescriptions and required to reach mastery significantly outperformed the Forced Progression Group, but the comparisons "failed to substantiate the efficacy of requiring forced mastery only, or of providing remedial prescriptions only."

All four groups were roughly equal in attitude toward health education and the three experimental groups were roughly equal in attribute toward computer-managed instruction.

Comparisons of time indices among the CMI groups indicated no significant differences in study time or in the number of days required to complete half or all of the module posttests.

RESEARCHER'S CONCLUSIONS:

"In conclusion, the methodology and results of the present investigation suggest the need for further exploration of instructional strategies which can be implemented via on-line CMI..."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 308 LOCATION: NWREL Info. Center/Periodicals

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Dolan, L. The status of mastery learning research and practice. Administrator's Notebook, 1977-78, 26 (3).

DESCRIPTORS: Mastery Learning

SHORT TITLE: Dolan, 1977-78, Mastery Learning Status Report

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Details on the studies reviewed are not presented, but the findings cited are congruent with those reported by the majority of mastery learning researchers.

SYNOPSIS:

In this article the author describes current applications of mastery learning strategies and lists major findings emerging from research on the effectiveness of those strategies. The findings cited emerged from "small experimental studies in limited content domains" and from evaluations of the effectiveness of larger scale programs, such as the Chicago Mastery Learning Reading Program (see Item No. 294). Findings from a large study conducted by the City Colleges of Chicago were also included in the synthesis.

ITEM NUMBER: 308 SHORT TITLE: Dolan, 1977-78, Mastery Learning Status Report

RESEARCHER'S FINDINGS:

1. Properly implemented, mastery learning strategies have been useful in increasing the level of achievement of students who meet the minimum standards of participation. Higher levels of retention and future application of skills have been documented. One critical finding is that general measures of aptitude fail to predict summative achievement within the mastery strategy, demonstrating that feedback and corrective strategies can overcome the specific history of the learner.

2. ...studies have shown that the investment of extra time early in the learning sequence is balanced by a payoff of more effective use of time at the later stages of learning.

3. Finally, there are important affective consequences, using mastery learning techniques, the learner tends to become more interested in the content being learned and feels more competent as a learner... Extended time under mastery conditions during the primary school years can have an impact on more general affective characteristics which parallel the dimensions of positive mental health.

RESEARCHER'S CONCLUSIONS:

"The evidence to date suggests that [mastery learning] deserves considerable attention for use in the fundamental subjects. The core of common learning, which most can agree is worth knowing to mastery, can form the foundation for student success throughout school."

REVIEWER'S NOTES AND COMMENTS:

None.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 309 LOCATION: U of O Library

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Hymel, G.M., & Mathews, G.S. Effects of a mastery approach on social studies achievement and unit evaluation. The Southern Journal of Educational Research, 1980, 14, 191-204.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Hymel & Mathews, 1980, High School History Study II

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT X FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This is a report of the same study as that described in Item No. 291.

ITEM NUMBER: 309 SHORT TITLE: Hymel & Mathews, 1980, High School History Study II

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 310 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Hyman, J.S., & Cohen, S.A. Learning for mastery: Ten conclusions after 15 years and 3,000 schools. Educational Leadership, 1979, 37, 104-109.

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Hyman & Cohen, 1979, Ten Conclusions re: LFM

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

Specific study/evaluation data are not given, but this is a very good summary of LFM strategies and outcomes.

SYNOPSIS:

In this article the authors summarize the outcomes of Learning for Mastery (LFM) programs in reading and math which they have implemented and monitored in over 3,000 schools since 1963. The conclusions drawn from their involvement with these programs are based on data gathered on thousands of students.

ITEM NUMBER: 310 SHORT TITLE: Hyman & Cohen, 1979, Ten Conclusions re: LFM

RESEARCHER'S FINDINGS:

1. "LFM is consistently more effective than traditional curriculums." The authors refer to the "enormous literature" which supports this conclusion...

2. "LFM's effects, rather than its effectiveness, are worth researching." The authors recommend research into the "affective, attitudinal payoffs" of this learning strategy...

3. "We can now say with absolute certainty that increasing P Ratio [the percentage of clock time pupils participate in learning] increases mastery...

4. "LFM learners master more objectives during a given time period compared to students in non-LFM classrooms that have neither defined nor required points of demonstrated mastery...

5. "Seven techniques increase participation and thereby increase mastery" (define instructional objectives behaviorally; teach the behavior directly; provide immediate feedback; given maximally positive feedback; modularize learning into small, assimilable bits; control stimuli so it is possible to know exactly what the learner is responding to; reinforce the learner's critical response.)

6. "PSI or individualized LFM designs are more effective than group LFM methods...

7. Competency-based instruction (CBI) implies, but not always requires, LFM..."

8. In any formal curriculum the CRT or the observed practice in the real world is the true objective.

9. "In general, schools are more concerned with teaching than with learning...LFM, on the other hand, is learning-oriented...

10. "Most teachers are easy to train as LFM classroom managers."

RESEARCHER'S CONCLUSIONS:

Findings and conclusions are substantially the same thing in the context of this article.

"What is worth leaving as a final thought on 15 years of LFM curriculum is our conclusion about P Ratio, LFM's most potent ingredient... Whatever else motivation appears to be, it is measurable and controllable as P Ratio. Since LFM pivots on the P Ratio concept, LFM appears to us to be the most potent curriculum model or our time."

REVIEWER'S NOTES AND COMMENTS:

A copy of the article may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 311 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Burns, R.B. Mastery learning: Does it work? Educational Leadership, 1979, 37, 110-113.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Burns, 1979, Mastery Learning "Box Scores"

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

We are given no detail on the methods employed by the two review groups nor on those used in the original studies. This is nevertheless a good overview of research on mastery learning effects and effect sizes.

SYNOPSIS:

After describing the basic differences between the Personalized System of Instruction (PSI) model and the Learning for Mastery (LFM) model, the author reviews research on the effects of mastery learning approaches. Findings cited are in response to two questions: (1) does mastery learning work?, and how well does it work? He then recommends that research be conducted concerning two additional questions: (1) do mastery methods work equally well for different kinds of learning outcomes?, and (2) do mastery methods work equally well for different types of students?

ITEM NUMBER: 311 SHORT TITLE: Burns, 1979, Mastery Learning "Box Scores"

RESEARCHER'S FINDINGS:

The findings cited are drawn from two large-scale reviews: Block and Burns (1977), concerning both LFM and PSI research; and Kulik, Kulik and Cohen (1979) concerning PSI studies only. The Block and Burns review reported that for 97 comparisons of average achievement scores between mastery and nonmastery groups, 59 significantly favored the mastery students. Most of the remaining studies also favored the mastery students, but differences were not significant. The Kulik et al., review reported that 48 of 61 comparisons favored the mastery groups significantly, and most of the rest favored these groups nonsignificantly. For retention and affective outcomes, more than half the comparisons in both reviews significantly favored mastery groups, with nonsignificant outcomes in their favor emerging from most remaining comparisons.

Effect size was not reported in all cases. For cognitive achievement Block and Burns found a large average effect size (.83) and Kulik, et al., found a moderate one (.49). For retention, the Block and Burns review indicated a moderate-to-large effect size (.67). For affective achievement, Kulik et al., reported a moderate-to-large effect size (.65).

RESEARCHER'S CONCLUSIONS:

"One has to conclude, given the research evidence to date, that mastery methods not only work, but work very well."

More research is needed to determine the efficacy of mastery learning methods for different outcome areas and different kinds of students.

REVIEWER'S NOTES AND COMMENTS:

A copy of the report may be found in the backup file on Mastery Learning.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 312 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Cohen, S.A. Dilemmas in the use of learner responsive delivery systems. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, CA, April 1981.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Cohen, 1981, LRDS Dilemmas

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a very good review of various mastery learning programs and their outcomes. Other issues which do not bear directly on the immediate concerns of the Research on School Effectiveness Project are also addressed.

SYNOPSIS:

This four-part paper (1) reviews the problem of teaching to individual differences; (2) discusses dilemmas that arise when educators decide to implement mastery learning and are confronted with choosing between teacher delivery systems and learner responsive delivery systems that accommodate individual learner differences; (3) presents a way to resolve these dilemmas; and (4) presents results of reading and math curriculums that utilize ways to resolve problems arising from the fact of individual differences among students.

This abstract reports the research/evaluation findings cited in the fourth section of the paper--findings which add to, and are more detailed than, those cited in Item No. 311.

ITEM NUMBER: 312 SHORT TITLE: Cohen, 1981, LRDS Dilemmas

RESEARCHER'S FINDINGS:

A 1977 report of 30 evaluations of projects that used early mastery learning systems between 1967 and 1970 was prepared by the author. These were High Intensity Learning Systems (HILS)-type instructional programs in reading at all levels, primary through college. Results indicated dramatic improvements in achievement of students at all levels and in different curricular areas (although the author describes these early individualized mastery learning programs as "primitive" compared to refined program approaches used since).

Data are then presented on subsequently developed programs and their evaluations. These data indicate that individualized mastery programs described as learner responsive delivery systems have consistently produced significant results. Specific programs and evaluations include: a basic skills program in Johnson City, New York; a curriculum for primary children in Baltimore; a curriculum for intermediate students in Whittier, California; and other curricula used with children in Michigan, Wisconsin and Maryland.

RESEARCHER'S CONCLUSIONS:

"There is no question that Mastery Learning in either style, individualized LRDS or group/teacher delivery system, is effective... Mastery Learning...logically [leads] to High Intensity Learning, PSI or whatever one chooses to call his or her individualized learner responsive delivery systems."

REVIEWER'S NOTES AND COMMENTS:

A copy of the report may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 313 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Cohen, S.A. Research Report: Omaha Project. New York, NY, December 1972 (unpublished).

DESCRIPTORS: Mastery Learning

SHORT TITLE: Cohen, 1972, Omaha Project

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

Data and data analysis methods are fully presented and described, and conclusions follow directly from the project results cited.

SYNOPSIS:

This is the report of an evaluation of the effects of a High Intensity Learning Systems project implemented in 30 Omaha schools in 1971-72. This was a Title I project in reading which involved 2,102 severely disadvantaged black Hispanic and white students in grades 3-12. Students received one hour per day of instruction using High Intensity Learning System--reading materials and approaches over a 4-1/2 month period.

The High Intensity Learning System approach features "a behavioral definition of instructional objectives, a systematic instructional program that allows each student to learn what he/she needs to learn, at his/her level and at his/her optimal learning rate, using all the instructional resources available to the profession, rather than using X publisher's program."

ITEM NUMBER: 313 SHORT TITLE: Cohen, 1972, Omaha Project

RESEARCHER'S FINDINGS:

"The average grade level growth for all grades [3-12] in 4-1/2 months of instruction was 8.7 months, almost double the expected growth if the students had been middle class--over 3-1/2 times the increase in growth over what is usually achieved by Title I inner city children. All data reported were statistically significant beyond the .01 level of confidence.

RESEARCHER'S CONCLUSIONS:

"High Intensity Learning shatters the myth that the psychosocial effects of racism and poverty prevent inner city disadvantaged children from making a year's gain in a year of instruction..."

REVIEWER'S NOTES AND COMMENTS:

A copy of the report may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 314 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Fiel, R.L., & Okey, J.R. The effects of formative evaluation and remediation on mastery of intellectual skills. Journal of Educational Research, 1975, 68, 253-255.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Fiel & Okey, 1975, Graph Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

The treatment duration was short, but the study gives indications of the superiority of a particular remediation approach for the development of intellectual skills.

SYNOPSIS:

The purpose of this investigation was to determine if remedial instruction that focused on prerequisite skills would produce a more significant improvement in achievement of intellectual skills than additional practice items used as remediation. The subjects were 90 eighth grade general science students who were divided into three treatment groups of 30 students each. All students studied a self-instructional unit on the construction and interpretation of graphs and took formative tests. Students in Group 1 were given additional instruction on objectives prerequisite to those in the main-line instruction in response to their errors on the tests. Group 2 subjects received additional practice items similar to those in the main-line instruction when they made errors. Group 3 subjects received no remedial instruction. Results of summative tests were compared.

ITEM NUMBER: 314 SHORT TITLE: Fiel & Okey, 1975, Graph Study

RESEARCHER'S FINDINGS:

Group 1 and Group 2 students (additional instruction and additional practice) significantly outperformed Group 3 (no remediation) students.

Group 1 students significantly outperformed Group 2 students.

RESEARCHER'S CONCLUSIONS:

"The results support Gagne's hypothesis that learning intellectual skills requires the mastery of prerequisite tasks and that additional study on the prerequisites will be more effective in remediating errors than additional practice of the final tasks themselves."

REVIEWER'S NOTES AND COMMENTS:

A copy of the article may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 315 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: The High Intensity Reading Program exemplary project study. Bel Air, MD: Board of Education of Harford County, June 1979.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Harford County, 1979, HIRP

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This report of project effectiveness was well done. Both year-by-year and longitudinal data indicate project success.

SYNOPSIS:

This report describes the features and outcomes of a Title I reading program, the High Intensity Reading Program (HIRP), used in the Harford County, Maryland public schools during 1975-1979. Students in grades 2-5 participated.

HIRP is an individualized program in which: (1) the teacher defines the students' unique needs and prescribes activities to meet those needs; (2) the student receives immediate feedback on his/her performance; (3) materials are designed to assist the teacher to personalize the content, rate and level of instruction for each student; (4) both teacher and student know what must be learned, what methods and materials to use, and how mastery must be shown; (5) a reading center is used to maximize engaged time for each student; and (6) the system is ongoingly reviewed and new materials are incorporated as appropriate.

ITEM NUMBER: 315 SHORT TITLE: Harford County, 1979, HIRP

RESEARCHER'S FINDINGS:

During the 1975-76 school year, a total of 263 students participated and the average reading gain was 1.42 months for each month's participation in the program. During the 1976-77 school year 476 students participated and the average gain was 1.55 months. In 1977-78, 498 students participated and the average gain was 1.8 months. And in 1978-79, 425 students participated and showed an average gain of 1.5 months.

Of all program participants, "only a handful had achieved over five or six months' growth in reading achievement during a normal 10-month school year prior to entering the program."

The longitudinal studies show that most students who participated in the program "are still continuing to make at least one year's growth for each year's attendance in school several years after leaving the program."

RESEARCHER'S CONCLUSIONS:

None drawn.

REVIEWER'S NOTES AND COMMENTS:

A copy of the project description/evaluation may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 316 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Cohen, S.A., & Rodriquez. Experimental results that question the Ramirez-Castaneda model for teaching reading to first grade Mexican Americans. The Reading Teacher, 1980, 34, 12-18.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Cohen & Rodriquez, 1980, Mexican American Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This small-scale study was carefully designed and carried out.

SYNOPSIS:

This report begins with a discussion and critique of a study conducted by researchers Manuel Ramirez III and Alfredo Castaneda on the cognitive learning styles of primary level Mexican-American children as compared with children of other ethnic backgrounds. A discussion follows concerning the "Mexican socio-cultural model" for educating these children that was based on the results of the Ramirez-Castaneda study. Finally, the authors report the procedures and results of their own study, which compared the effects of a Ramirez-Castaneda model with those produced when a High Intensity Learning (HIL) model was used.

Subjects were 150 low SES Mexican-American first graders in a California elementary school. Half of these were randomly assigned to three classes in which a Ramirez-Castaneda model was used for instruction in vocabulary and comprehension skills. This model featured whole class and small group instruction, employed styles and techniques recommended by its developers, and teacher training using the Castaneda manual. The other half of the subject group, also three classes, received HIL instruction which featured mastery learning techniques. HIL students were pretested, used instructional cassettes and a self-directly workbook, took a test on each competency and participated in remediation activities as needed until mastery was demonstrated. Instruction of all students took place for 45 minutes daily, over 20 consecutive school days. Summative and retention tests were administered to all subjects.

ITEM NUMBER: 316 SHORT TITLE: Cohen & Rodriquez, 1980, Mexican American Study

RESEARCHER'S FINDINGS:

High Intensity Learning subjects significantly outperformed Ramirez-Castaneda subjects on both summative and retention tests.

RESEARCHER'S CONCLUSIONS:

"The results of this study indicate that direct reading instruction to precise behavioral objectives is more potent that the attempt to cater to Mexican American children's supposed 'cultural learning styles'."

REVIEWER'S NOTES AND COMMENTS:

The authors describe the Ramirez-Castaneda view of the attributes of Mexican American children as including "the need to learn in a group rather than in a self-directed setting, the need to make decisions through peer consensus, the enjoyment of helping others, sensitivity to peers' feelings, the need to be liked by peers and teachers, the need for teacher and parent approval and the need to involve their parents in school activities."

A copy of the report may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 317 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Ware, A.E. A comparison of two mastery learning strategies relative to the effects upon achievement, retention, transfer and attitudes. Dissertation Abstracts International, 1977, 38, 3264A.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Ware, 1977, Map and Globe Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This was a well-executed experiment. The rating reflects reviewer response to the limited information in the abstract, not to the study, which was unobtainable in the time allowed.

SYNOPSIS:

This study compared the effects of Bloom's Learning for Mastery strategy with those of Keller's Personalized System of Instruction on four outcomes: achievement, retention, transfer of learning and attitudes. Eighth graders in a Washington junior high school were randomly assigned to the two treatment groups and received instruction in map and globe concepts and skills. The equivalency of the groups was assured by comparing pretest scores on tests measuring previous knowledge of these skills. All subjects took an achievement test, tests of immediate and delayed retention and transfer, and an attitude inventory.

ITEM NUMBER: 317 SHORT TITLE: Ware, 1977, Map and Globe Study

RESEARCHER'S FINDINGS:

There were no significant achievement or immediate retention differences between LFM and PSI groups.

LFM students significantly outperformed PSI students on the delayed retention test administered one month after the end of instruction.

LFM students showed significantly greater transfer than PSI students on both immediate and delayed tests.

PSI students had more positive attitudes than LFM students.

RESEARCHER'S CONCLUSIONS:

The abstract does not cite conclusions.

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 318 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Wyckoff, D.B. A study of mastery learning and its effects on achievement of sixth grade social studies students. Dissertation Abstract International, 1974, 35, 5160A.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Wyckoff, 1974, Anthropology Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study appears to have been well done. The rating is based on reviewer response to abstracted information.

SYNOPSIS:

In this study 107 sixth graders receiving instruction in anthropological concepts were divided into two experimental groups (totaling 52 students) and two control groups (totaling 55 students). The experimental students were taught using a mastery learning strategy which featured a teach-test-reteach-retest feedback/correction process. Students in each experimental class were required to achieve a group test score of 70 percent before the group progressed to the next concept to be learned. Peer tutoring was used for the reteaching process. Control students were taught by conventional methods. All students completed an anthropology achievement test.

ITEM NUMBER: 318 SHORT TITLE: Wyckoff, 1974, Anthropology Study

RESEARCHER'S FINDINGS:

No significant achievement differences were obtained on the overall comparison between experimental and control students.

Comparisons for males, low reading level students and low IQ students favored the mastery learning strategy.

No differences were obtained for females, high reading level students or high IQ students.

RESEARCHER'S CONCLUSIONS:

Findings are restated.

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Mastery Learning.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 319 LOCATION: NWREL Info. Center/Books

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Block, J.H. Mastery learning in the classroom: An overview of recent research. In J.H. Block (Ed.), Schools, society, and mastery learning. New York: Holt, Rinehart and Winston, Inc., 1974.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Block, 1974, Research Overview

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT X FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This excellent and widely cited review of mastery learning research was updated in a 1976 report by the author and a collaborator. (See Item No. 296.) Although this document is not, therefore, an official part of the research base for the current Research on School Effectiveness report, it is recommended reading for those with an interest in LFM and PSI research.

ITEM NUMBER: 319 SHORT TITLE: Block, 1974, Research Overview

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 320 LOCATION: Project Files

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Rubovits, J.J. A classroom field experiment in mastery learning. Dissertation Abstracts International, 1975, 36, 2720A.

DESCRIPTORS: Mastery Learning

SHORT TITLE: Rubovits, 1975, Shop Classes

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ___ IRRELEVANT ___ FOR PRESENT PUPPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

The rating is based on a review of information in the abstract.

SYNOPSIS:

This study compared the effects of a learning for mastery (LFM) strategy with those of a nonmastery approach on the achievement and attitudes of 260 students in grades 6-12. Each of 11 teachers taught one mastery and one nonmastery class; subjects taught included machine shop, auto mechanics, power mechanics, woodshop, mathematics, social studies and sociology. Students took unit achievement tests and completed an attitude questionnaire concerned with mode of instruction and difficulty of learning.

ITEM NUMBER: 320 SHORT TITLE: Rubovits, 1975, Shop Classes

RESEARCHER'S FINDINGS:

A trend in favor of the mastery strategy was observed, but there were no significant differences in achievement between mastery and nonmastery students in any of the subject areas.

There were no differences in student attitudes based on instructional strategy used.

RESEARCHER'S CONCLUSIONS:

None offered in the abstract.

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the Mastery Learning backup file.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 321 LOCATION: NWREL Info. Center/ERIC MF

REVIEWER: K. Cotton DATE REVIEWED: March 1982

CITATION: Swanson, D.H., & Denton, J.J. A comparison of remediation systems affecting achievement and retention in mastery learning. Rochester, NY: Rochester Institute of Technology; College Station, TX: Texas A&M University, 1976. (ERIC/EDRS No. ED 131 037)

DESCRIPTORS: Mastery Learning

SHORT TITLE: Swanson & Denton, 1976, Secondary Chemistry Study

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT X IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This small-scale, short-term study was well designed and conducted.

SYNOPSIS:

This study compared two forms of remediation with each other and with a no-remediation instructional setting to determine the relative effects of these methods on student achievement and retention in high school chemistry. Students in grades 11 and 12 participated. All students received instruction in chemistry for eleven 45-minute class periods and two 90-minute laboratory periods, and were then given an achievement posttest. The 53 students who did not demonstrate mastery were divided into three groups. One group of 17 students received Learning for Mastery (LFM) remediation, in which students used knowledge of test results, peer tutoring, self-study and discussions with the teacher to improve their knowledge of course content. They took formative tests when they felt ready, and students not achieving mastery had a special review session with the instructor and were then retested. A second group received Personalized System of Instruction (PSI) remediation. These 18 students were instructed to repeat reading assignments and to study the original problem assignments and laboratory reports. They were encouraged to read class notes. When they felt ready, students took a formative test, and those still not demonstrating mastery did whatever self-directed studying they chose before taking the test once again. A third group (of 18 students) received no additional instruction, but were given an optional assignment to improve their course grade. All students took a delayed achievement test.

ITEM NUMBER: 321 SHORT TITLE: Swanson & Denton, 1976, Secondary Chemistry Study

RESEARCHER'S FINDINGS:

Students receiving remediation activities (of either kind) outperformed students receiving no remediation on achievement and retention measures.

Students receiving LFM remediation activities outperformed those receiving PSI remediation on both measures.

RESEARCHER'S CONCLUSIONS:

"1. Achievement, determined by the number of performance objectives mastered, can be significantly increased by remediation strategies which emphasized accomplishment of the objectives. Moreover, remediation strategies which include alternate materials and activities [LFM] appear to provide more optimum learning conditions than repeating the learning activities and reviewing the reading materials encountered during the initial instruction of a unit."

"2. Retention of cognitive skills, measured by a total score on an achievement posttest developed to assess student mastery of performance objectives, is influenced by the nature of the remediation strategy experienced by the student."

REVIEWER'S NOTES AND COMMENTS:

None.

100

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 322 LOCATION: GBE Program

REVIEWER: K. Cotton DATE REVIEWED: June 1982

CITATION: Bloom, B.S. Human Characteristics and School Learning. New York, NY: McGraw-Hill Book Co., 1976

DESCRIPTORS: Mastery Learning, Time Factors (Learning)

SHORT TITLE: Bloom, 1976, Human Characteristics and School Learning

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT _X_ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE _X_ DISSERTATION ABSTRACT ____

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This thoughtful volume utilizes a large volume of well-designed research to lend support to several major contentions about the efficacy of mastery learning.

SYNOPSIS:

This now-famous book on mastery learning theory and practice utilizes the results of a large number of mastery learning studies and reviews to demonstrate the book's main thesis: that "most students become very similar with regard to learning ability, rate of learning, and motivation for further learning--when provided with favorable learning conditions." The favorable learning conditions are the component parts of mastery learning, which are described in relation to their effects with students of different entering characteristics, cognitive and affective. Within each chapter the outcomes of mastery learning studies are presented to demonstrate what occurs when each asepct of the model is carefully tested.

ITEM NUMBER: 322 SHORT TITLE: Bloom, 1976, Human Characteristics and School Learning

RESEARCHER'S FINDINGS:

Studies which have tracked students of very different cognitive and affective characteristics and histories have generally lent support to the hypothesis that students do become more alike in learning ability, learning rate and learning motivation when they work with a mastery learning approach. Control students in these same studies tended to demonstrate lower achievement and to become more diverse in their achievement, learning rates and attitudes.

Many cases in which mastery learning students did not appear to experience the theorized reduction in variability were bound to be instances of failure to follow the procedures consistently, or instances where the procedures followed did not comprise a true mastery learning program.

RESEARCHER'S CONCLUSIONS:

Conclusions have chiefly to do with the need to restructure the methods of instruction most commonly in use in the schools to take advantage of what has been learned about the superior effects of mastery learning.

"The distribution of school achievement is a direct consequence of student involvement in the learning process and of instructional processes used by teachers and others in the school situation. Each distribution is causally related to the variables we have described [i.e., affective traits, cognitive traits, quality of instruction, etc.], and ignorance about them does not free the teacher or the school from responsibility for them. We prefer distributions which are indicative that most students have mastered what the schools have to teach."

REVIEWER'S NOTES AND COMMENTS:

None.